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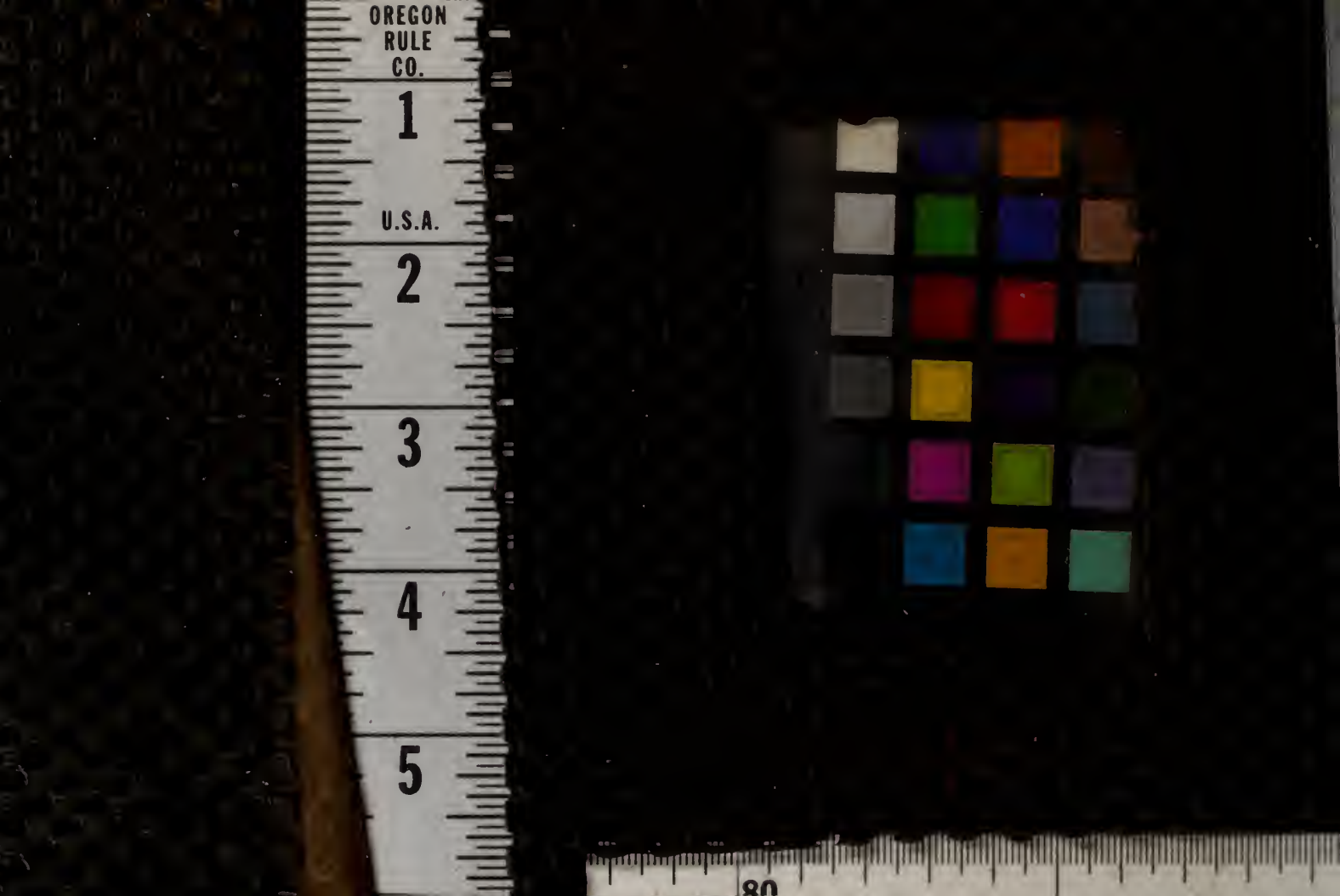
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TECHNOCRACY

Series A, Number 11

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Official Literature

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TECHNOCRACY

For the New America

THE OFFICIAL MAGAZINE OF TECHNOCRACY INC.

SERIES A, NO. 11 APRIL, 1938

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The Frame-Up

By Howard Scott
Director-in-Chief, Technocracy Inc.

IN 1929, the United States were roaring prosperity of ever-higher values, a prosperity that was proclaimed would continue for ever and ever; but unfortunately politics, finance and business had overlooked the basic fundamental, the new significance in our social existence—advancing technology.

Today, with 1937 in the past and 1938 getting under way, the roaring prosperity of 1937 has become the scream of the recession. The government of the United States growls at business, and national business howls at the government. The spokesmen for the Roosevelt administration resurrect the baloney of the Big Stick, the specter of predatory wealth, and the bogie-man of monopoly. Led by the National Association of Manufacturers, the heads of corporate business in these United States, wildly blame government for the present rapid descent from the so-called prosperity of 1937. In a like manner, our federal government lays the blame on the greedy wrong-doers in business.

Both are partly correct.

The federal government at Washington would have been more correct if it had included all business; and business would have been more correct if it had included the entire structure of political government in these United States. But neither government nor business has either the intention or desire to be factually correct in the serious situation in which the country finds itself today. In its entire history the United States government has never been fundamentally opposed to business. National business in the United States has never in its entire history been fundamentally opposed to the political government of this country.

Since 1932, the government of the United States has pumped over twenty billion dollars of national credit into the business of the country. In simple words, the government has saved corporate business for the business man. True, the cost has been high, but business in the United States has always believed that it is the duty of the government to save national business, at any cost. At the low of the market in 1932, the United States Government could have purchased for $15,500,000,000 the securities of all corporations listed on the New York Stock Exchange. Events have proven that it would have been cheaper for the United States Government to have put business out of business in 1933 than to have spent, up to 1938, twenty billion dollars in useless salvation.

It is interesting to note that, in spite of the terrific government priming and the strenuous efforts of corporate business, physical production and distribution have oscillated six times since 1932. This is an industrial phenomenon that is truly American, and has no counterpart in the rest of the world. To state it mildly, the more national credit, public or private, or both, that is used to modernize the productive and distributive equipment of this country and this Continent, the more violent will be the oscillation of our national operations. In the past six years the federal government and national business have done their damnedest to justify their social usefulness.

National business is scared. It has the jitters. In the past six years it has done its best to help the government save the country, and yet national business knows only too well that salvation by the federal government is ruination. The federal government of these United States knows equally well that national salvation by national business would be the chaos of anarchy. National government and national business have taken down their hair and are telling each other their right names.

In the United States there has never been any basic conflict between national government and national business. Therefore the attempt to ballyhoo to the people of this country such a conflict as actually existing is nothing short of lying hypocrisy on the part of both our government and national business. The ballyhoo of this supposed conflict is all for the purpose of effecting a grand reconciliation on the basis of co-operation and the good-neighbor policy—all for the wonderful purpose of staging the frame-up of the people of this coutry by the government, finance capital, business, and the leaders of labor—all getting together to save the country so that chiseling may go on in the land of the free and the home of the brave. Whenever a frame-up is staged, someone is due for a trimming, and a goat will be selected for the blame. In this present frame-up, the public of the United States will be trimmed again, and labor—the A. F. of L., the C. I. O., and the Railroad Brotherhoods—will be the goat.

Is it not strange that in 1938, in the United States of America, the greatest country on earth, possessing more automobiles, more telephones, more bathtubs, and more power-driven machinery, than the rest of the world—is it not appalling, that a country so endowed, has not in the last ten years of its existence developed any national leadership in business, politics, finance, industry, or science, except the gypping leadership of the chiseler?

The so-called national leadership in today's business, politics, industry and science are drenched with the putridity from the gutter of special privilege and personal aggrandisement. They shine for the moment in the immediate present, but like the dead mackerel glittering on the beach in the moonlight, the stench remains when the moonlight goes. The naive stupidity of that outstanding figure of American business, Mr. Lamont Du Pont, proposing that American citizens can attain the abundant life by having private capital underwrite a loan of twenty-five billion dollars to private enterprise to be used in replacing all the obsolescent equipment of production and distribution with the last word in technological automaticity, is equalled

only by President Roosevelt and his administration in their proposal to legislate in the abundant life by the abolition of greedy monopoly and by *more* corrective legislation. This all-time low in national leadership is paralleled in the field of science by the disgraceful antics of Millikan and Compton, trying to sell their souls to business and politics for more and better endowments. The sacred cows of the Price System are staging their last parade, but unfortunately for them they cannot change their spots. The march of events in this country and on this Continent is daily proclaiming that such 'leadership' is national sabotage and Continental defeatism.

The function of government and business under a Price System is to maintain the values of a scarcity economy. All governmental legislation is enacted for this prime purpose. All business practice is predicated on this premise. All disputes and disagreements will be adjudicated by the national referee of chiseling, the United States Supreme Court. Neither the federal government, nor national business in the United States, have the structural facility, or the purpose or the desire, to abolish the economy of scarcity and to inaugurate an era of abundance. It is physically impossible for either federal government or national business, singly or collectively, to produce and distribute security and abundance in these United States.

The United States and Canada are engaged today in the most fundamental conflict that has ever occurred in the social history of man. This conflict transcends all questions of political parties and political government. It overshadows all questions of business, public or private and all questions of ownership, morality and legality, ethics and liberty. This conflict is negating all of the philosophic concepts and all of the social values of yesterday's seven thousand years. It will end in the abrogation of all existing legalities. The outcome of this conflict will be the leadership of civilization for this Continent and the world. And yet, here we are with our supposed national leadership jazzing its personal ambitions while the United States oscillates ever more swiftly toward the catastrophe of national chaos!

This conflict of the ages is a conflict between yesterday and tomorrow, between toil and technology, between poverty and plenty. It is the conflict of the seven thousand-year-old process of producing the physical wealth of scarcity with a maximum of human effort, versus the technological production of physical wealth of abundance with an ever-declining minimum of human effort. In all of the scarcity economies of yesterday the total physical wealth of any economy could only be increased by working human beings longer, by increasing the population, or by a combination of both.

The physical wealth of the United States and Canada is created by a technological production. It therefore follows that the only way we can increase the sum total of physical wealth in our economy is to see to it that the technology of production and distribution shall be operated at higher load factors, more efficiently. It follows axiomatically that when more physical wealth is produced, technological machinery will produce it with less and less human effort.

From now on out in the United States and Canada we can only produce more by working human beings less. Nationally, we will have to trade in our overalls for recreational shorts.

With human beings working fewer hours to produce more, with faster capital pay-offs, with lower and lower interest rates, how can sufficient purchasing power be paid out in the form of salaries and wages to attain even a momentary national stability, let alone permanent progress?

The parade of the lame, the halt, the dumb, and the blind, certainly has set in across the national stage. If Mr. Lamont Du Pont and the National Association of Manufacturers did succeed in their twenty-five billion dollar modernization of American industry, the physical production of the nation would oscillate in four months, instead of one year. And with such frequency of oscillations, what would happen to Mr. Lamont Du Pont and the National Association of Manufacturers?

The chiseling conditioning of national business and national politics cannot produce the leadership required by this country and this Continent on their march to America's tomorrow. Only a new leadership of men and things can accomplish such a gigantic task. The leadership of America's tomorrow can only arise from out of those Americans of today who design, construct and operate the physical equipment of this Continent.

Technocracy is the technological orchestration of the new leadership for the arrivation of the New America.

Howard Scott Spring Tour!

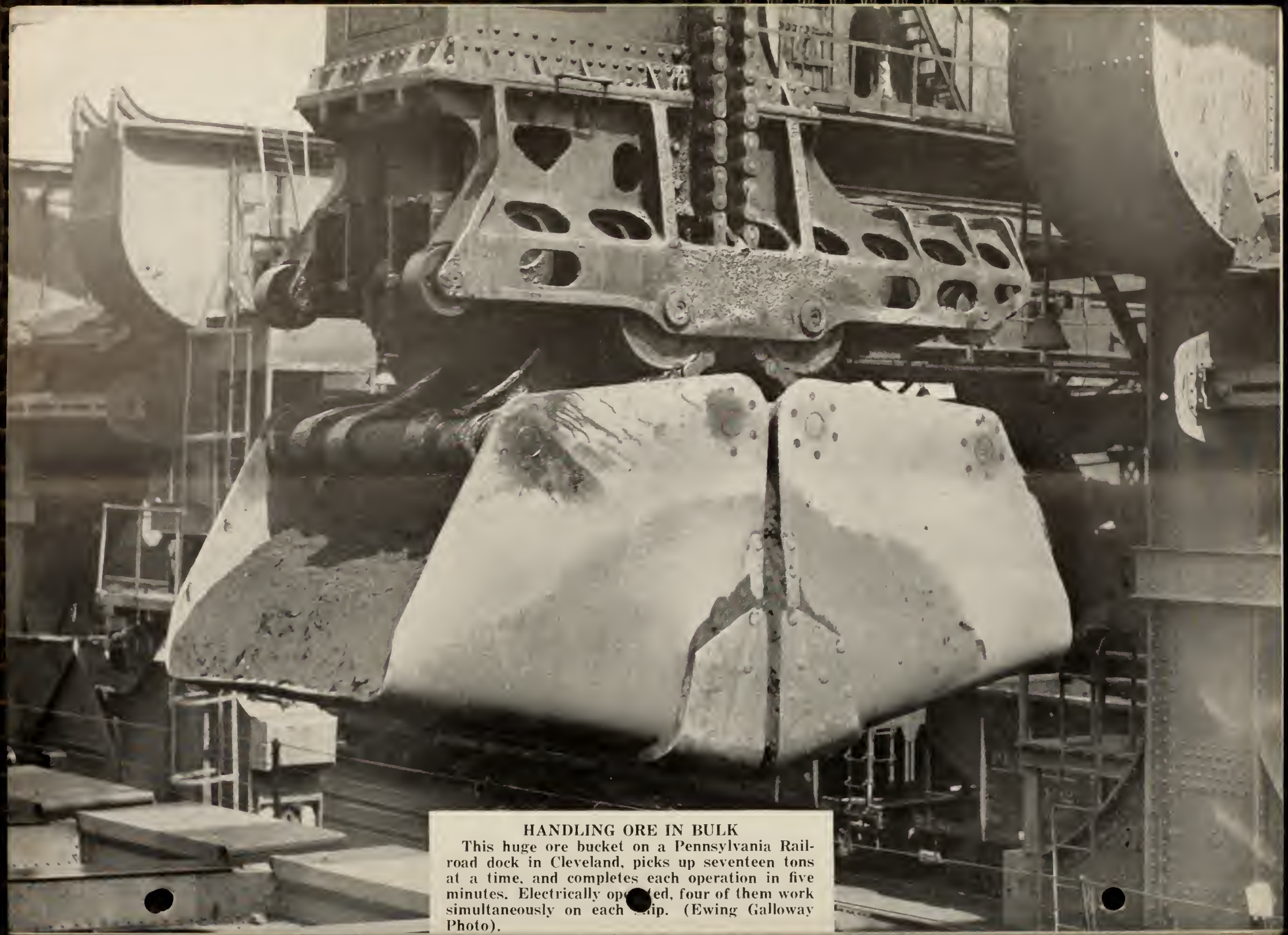
IN the middle of April, Howard Scott, Director-in-Chief of Technocracy Inc. starts again on another lecture tour to organize the Technological Army of the New America. This time the tour will not go farther west than St. Louis, but will cover the most densely populated area of like size on the North American Continent. Although a definite schedule is not yet drawn up, it is expected that the following cities will be included: Cleveland, Akron, Toledo, Detroit, Chicago, Milwaukee, Appleton, St. Louis, Indianapolis, Dayton, Canton, Youngstown, Wheeling and Pittsburgh. The population of these cities is in excess of ten millions.

The accumulation of requests for the Director-in-Chief of this organization to lecture in the above cities has made this tour immediately necessary, and with the rapid decline of industrial and business activity in the area, exceptional interest is expected.

The tour is expected to occupy a month, and during this time, while progress is being made in this area, it will be accompanied in other areas of the Continent by lectures and organization work carried on by other speakers of Technocracy Inc. Reports of the Howard Scott Spring Tour will appear in this magazine, and more detailed accounts will be given in our capable Cleveland magazine, *Eighty-One Forty-One*.

For definite information re dates and locations of lectures in the above cities, readers are invited to inquire at Continental Headquarters of Technocracy Inc. Howard Scott's message in this time of speedy national decline will be received with avid interest by all who are acquainted with the fact of this lecture tour.

—C. H. Q. Tour Director.



HANDLING ORE IN BULK

This huge ore bucket on a Pennsylvania Railroad dock in Cleveland, picks up seventeen tons at a time, and completes each operation in five minutes. Electrically operated, four of them work simultaneously on each ship. (Ewing Galloway Photo).

An Open Conspiracy

By L. M. Dickson (C. H. Q.)

THROUGH the current storm of political charges, counter charges, programs and promises emerges the current propaganda campaign of the New Deal in the United States, and to a lesser extent the propaganda campaign of the McKenzie King 'Liberal Deal' in Canada. As always before, it is aimed at the general public for the express purpose and final objective of attracting an ever widening field of potential party voters.

The new political expedition is being forced by the 'recession' of late 1937 and of 1938, and its bait is contained in a general appeal for the maintenance of the principles of democracy and complete supervision by a wise and benevolent government, culminating in greater and more specific promises of the more abundant life. In the past the consumer has been promised more employment, more leisure, higher wages, lower prices, fewer taxes, more security, greater health, less privation and in general a more desirable world to live in. Corporate business, and the producer, large and small, have been promised freedom from labor troubles, higher prices, fewer taxes, a balanced budget, less interference, and more business. These promises are being continually repeated. This is the gala day of political promising.

Some time ago Technocracy Inc., told the people of this Continent that the national administrations would stagger from one futile gesture to another in an effort to 'make good' their oft repeated promises. Such has been the case. Sincerity can be granted as the chief virtue of any political government, and particularly so of the Roosevelt administration. It has tried desperately to attain its desired ends, and it has applied a series of palliatives, stop-gaps and remedial measures, which in toto comprise a tall, national alphabetical cocktail. By direct relief, by work projects, by subsidy to business, by loans and by legislative enactments, it has attained a series of temporary and partial salvations, each one ending in another violent downward oscillation of business and production. The net result is a perpetual national and Continental hangover, accompanied by varying degrees of disillusionment.

Every day from Washington, D. C., comes an average of 90,000 words, released or inspired by the myriad spokesmen of the New Deal. They tell the people what their government is doing in all its mighty works; they reassure and calm the rising doubts and fears, and they make yet greater and more grandiose promises. Never has history seen such a flood of organized propaganda. And through it all, suggested by implication or stated boldly, is yet another proposition—the first half of the great open conspiracy; namely, that under the stewardship of intellectual political liberalism, the abundant life can be rendered by the legislative enactments of a party congress, and that scarcity can be banished *only* by the government regulation of all economic agencies.

Each daily newspaper carries its share of political news, nearly all inspired by whatever government may be in office. From your daily paper you can glean your own examples. We quote the following United Press dispatch from the *New York World Telegram* of December 29, 1937:

> 'Secretary of Commerce Roper said today that "good business" has nothing to fear from the Roosevelt Administration, but he described the practices of "evil monopolies" as obnoxious. "Evil business—monopolies that are seeking to stifle competition—is quite a concern to good business itself as well as the consumers," Mr. Roper said in discussing his year-end statement. "I feel that good business has nothing to fear from this administration."
>
> 'The Secretary's year-end statement said that despite the business recession the composite economic picture for 1937 would show better results than 1936.'

We are to trust and believe in our government. It will protect us against the grasping hand of monopolistic business. Things are not as bad as they seem. Even business has nothing to fear if it but respects the right of the government to 'protect the rights of the public.'

By another United Press dispatch of the same date we see that the government admits the impossibility of being able to attain a balanced budget in 1938. The following factors were also brought out by the dispatch:

> '1. Increasing unemployment accompanying the recession.
> '2. Likelihood that international conditions will require increased expenditures for national defense.
> '3. Congressional reluctance to trim "pork barrel" expense items.
> '4. Possibility of resumed Federal pump-priming spending.'

Yet in spite of this the following attitude was revealed by government officials:

> 'Somewhat offsetting the disturbing unemployment facts was the administration's belief that social security unemployment insurance becoming effective January 1, would cushion the economic shock of new millions of unemployed.
>
> 'Federal relief officials said, also, that their own funds were in better circumstances today than a year ago, which encourages hope that it will not be necessary for Mr. Roosevelt to ask Congress for a large supplement relief appropriation for this fiscal year.'

We see that the government will smooth things out by legislation and by hoping for the best even if the admitted facts are lugubrious to contemplate from an economic, Price System standpoint. On the same day the Assistant Attorney General suggested that the big business advocates of an 'aristocratic anarchy' are

fostering a general strike of capital in America to coerce political action.

> 'Big business has come to exercise an increasing power over the standard of living, the wages and the economic opportunities of our people. It was estimated in 1929 that 200 non-financial corporations controlled 49 per cent of the assets of all such corporations.
>
> 'By 1933 the percentage had increased to 56 per cent. The 200 largest corporations were directed nominally by about 2,000 individuals, but actually the control resides in the hands of a much smaller number of men.
>
> 'Now the things they strike at are the things which won the increasing majorities in 1932-34 and 1936. Do these big businessmen think they can strike down a whole program that so held the hopes of men without arousing bitter resentment? The wrath of the people has been rising as they have seen Uncle Sam told to stick up his hands and deliver his utilities program, his monopoly program, his social security program, and his tax program to one or another interested group.'

In a recent radio address he had warned that big business is pricing itself out of the market and blamed manipulations of trusts for the current business recession. In short, the government contends that what the country needs is *more* government and *more* business, and that the only way to have *more business* is to have *more government*. Our government will do it for us, so it is claimed. And in accordance with the measure of the success of its propaganda so shall that government reap the harvest of votes which shall be its just and honest reward. The game is on.

And so the public is assailed by 90,000 words per day from the chief seat of political government. This however, is not all. From the ranks of big business and corporate enterprise comes another clarion call to the ear of Mr. and Mrs. America. Led by the captains of industry, trade and finance is a horde of the most skillful advertisers, propagandists, and public relations counsellors yet produced by any civilization. Leading this parade are the National Association of Manufacturers, the Cleveland Trust, the Chase National Bank, the Allied Machinery and Products Institute, the Ford Motor Company, General Motors Corporation, the McGraw-Hill Publishing Company, the Du Pont de Nemours, The United States Chamber of Commerce, the General Electric Company, the United States Steel Corporation, the Aluminum Company of America, and others.

Unknown in history before, these lions are marching together towards a common objective and are striving to articulate a new message to their sucker public. In *Harpers*, January, 1938, it is stated by Paul Garrett, public relations director of General Motors, that his corporation has 28,000,000 'voters,' consisting of all their employees, stockholders, dealers, and actual buyers. Upon the 'votes' of its public does each corporation depend, and for the first time in history they are beginning to see that their problem is one common to all.

We see therefore a propaganda campaign of Big Business, aimed at the general public for the express purpose of placating a reproachful citizenry, and to include a desired widening field of potential buyers.

The bait of this counter-campaign is contained in the proposition that this is the best of all possible systems; that business exists only to serve; that we are all in business anyway; that true progress is accomplished only by individual effort; that business is the builder of civilization; that more machines mean more wages

More generally it is contended that private industry, by common consent can finance its own expansion to such a degree that its program will result in higher wages and more material comfort to the general public and at the same time provide industry with more profits and all the benefits that commonly accrue to successful operation under the Price System.

Corporate enterprise states that it would like to, and can underwrite the amortization of obsolescent equipment, and install new equipment, creating employment thereby and making possible a higher general standard of living, if it is assisted in this great humanitarian project by the co-operation of government in the relief from unjust taxation and all undue, coercive legislation. The following quotation from a McGraw-Hill editorial printed in one million copies of their technical and business magazines expresses the fervent desire:

> 'Today, everybody sees that private industry *alone* can lead the march back to prosperous times. Business leaders, labor leaders, legislative leaders, and now the National Administration, all agree that the leadership must pass from Government to private enterprise. As spokesman for the Administration, Secretary Morgenthau has said:
>
> *"The basic need today is to foster the full application of the driving force of private capital. We want to see capital go into the productive channels of private industry. We want to see private business expand."*
>
> 'So do we all. Nothing can take the place of expanding business.....The businessman needs it to meet his expenses and earn a profit. The investor needs it to put his capital to a productive use. More than anyone else, the workman needs it for a steady job at regular wages. And the Government needs it to get the revenues required to carry on. Everyone needs better business; there is no other way forward. But if business is to resume its leadership, Government must revise its policies to make the shift possible.'

Through all the miscellaneous array of technical, financial and trade publications comes the same clamor, a bitter denunciation of governmental participation in business control. Business is trying to bite the hand that has fed it through the past stormy years; it is yielding to the medieval wish to exterminate its benefactor. We quote three others in similar vein:

> 'Let us have no more experiments in Government control. The very idea of more Government encroachments upon the freedom of doing business is in itself enough to hamper and discourage enterprise. At present there are no basic economic causes for a prolonged recession. On the contrary there is right at hand the economic basis for a great period of industrial activity and prosperity which would give employment to millions of our people.'—*T. M. Girdler, Chairman Republic Steel Corporation.*

> 'Is there any reason to believe that a new board or any existing bureau is capable of fixing wages and hours for the thousands of industries in this huge country? It would take supermen to do something that has been tried many times in other countries and never with success.'—*American Machinist, December 15.*

> 'No congress can legislate prosperity. As a nation and as wage earners, we can have only what we produce.'—*Factory Management and Maintenance.*

In brief, corporate enterprise contends that what the country and the Continent needs is *less* government and *more* business, and that the only way to have *more business* is to have *less government*. Business can and will do it, so it says, and so the second half of the conspiracy moves forward in a gigantic program of public

'education.' It would educate the public to believe in the beneficence of big business, and thereby restore confidence so that the voting dollars of the consumers will again flow in the quantity necessary for successful trading operations.

We thus have a double-edged hypocrisy coming from the two founts of accepted leadership—government and business. Technocracy Inc. contends that it is a conspiracy to misinterpret and distort the facts, a patently 'open' conspiracy it is true, and one which in large part will contribute to the ultimate disillusionment which the conspirators seek above all things to avoid. Technocracy Inc. states that both approaches are erroneous and misleading; that both misrepresent the facts, and that government and business are running the joint risk in their conspiracy, of being charged with the ultimate precipitation of an anarchic condition from which there will be no economic salvation. Business and government both possess the facts; so does Technocracy Inc. But business and government are not revealing them, while Technocracy Inc. is, to the extent of its limited ability. Business and government have millions of dollars at their disposal for the dissemination of propaganda, but Technocracy Inc. accomplishes its work with the most meager funds, funds that business and government would scorn.

Technocracy Inc. does its utmost—with considerable effect upon the thought patterns of the people of this Continent—knowing that the people of this Continent will be forced to turn to that organization which gives them the facts: whereas the twin conspirators of the Price System, according to the decadence of their position will be judged guilty, not only of incompetence, but of gross, criminal negligence. When the people of the United States and Canada are forced to this conclusion, the days of the Price System will be over.

The Culture of Abundance

By E. Merrill Root

Editor's note: 'Technocracy' presents 'The Culture of Abundance,' an article specially written for it by E. Merrill Root, who is not a member of Technocracy Inc. but is already known as a contributor to the literature on Technocracy. In a few short years Technocracy has effected the thought processes of millions of people. That this has extended to the realm of art and the subjective is clearly portrayed by Mr. Root's skillful presentation; what it will yet do in this field is told in the article for the information of our readers. The culture of the past has been the culture of toil, poverty, starvation and misery. The culture of tomorrow must be something new, and its general form will be laid down by the pattern of technology on this Continent. Our art, our philosophy, our literature must be a reflection of the technology and the abundance of the New America.

TECHNOCRACY proves in theory what in practice it will provide—abundance. It points to the great four-lane highway into the future, which man has constructed but which he refuses to use, and says: 'Why do you bump over detours of depression and debt and political revolution and fascism and war, when you might drive the supercharged car of Technocracy into the future that is already here? See, the road is built!'

If humanity is not merely to endure in retrogression but to continue in living growth, that question must be answered by obeying it. And it will be obeyed. Human need is a passenger that will not consent forever to be jolted into deeper ruts and muddier by-ways: the driver will have to relinquish the wheel if he refuses, through ignorance or design, to take the obvious road. Abundance is here; the mastery of abundance must come.

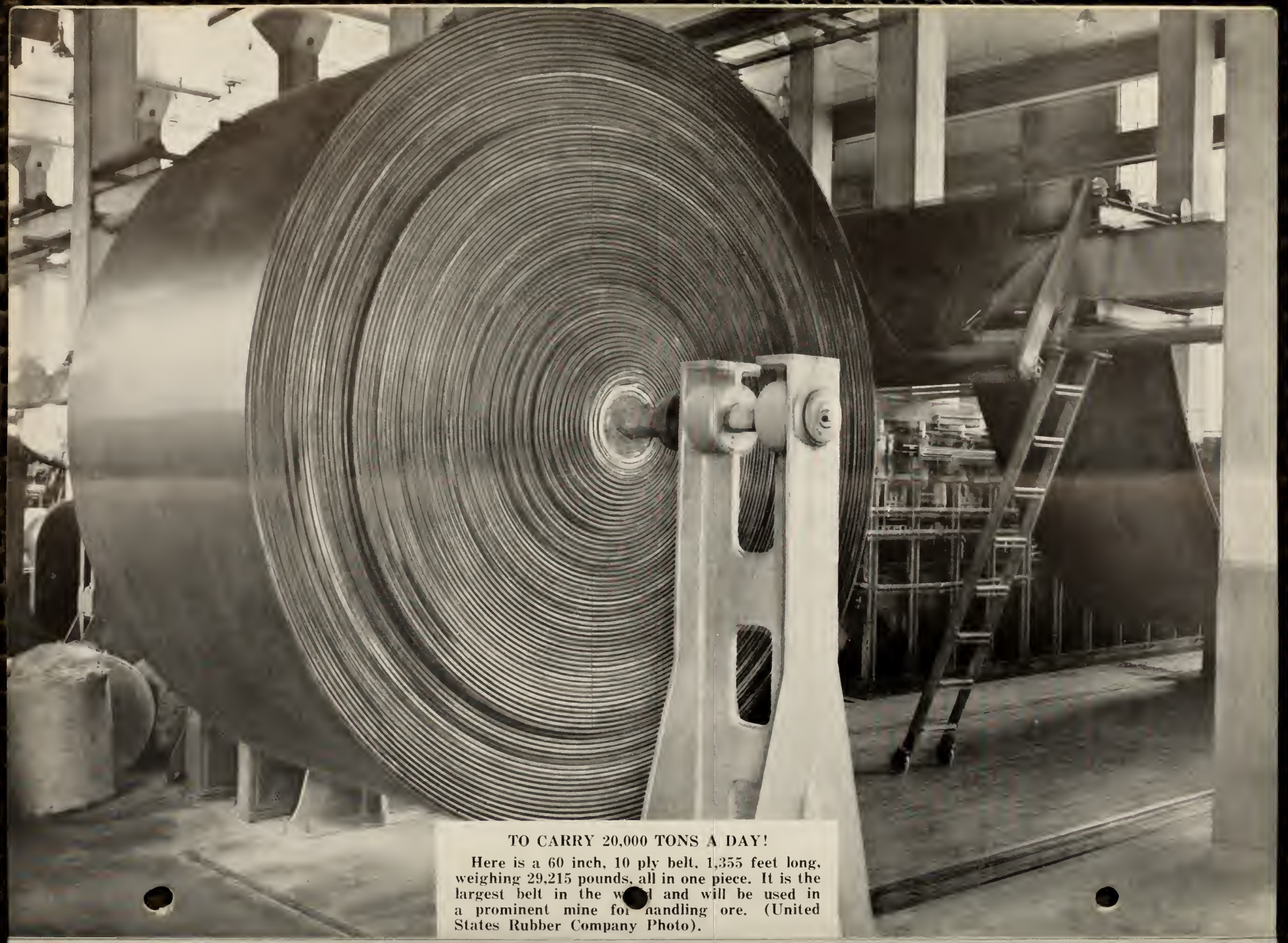
But that is not my concern now. I take present abundance for granted and future mastery of abundance for granted, and turn to a question that as yet has scarcely been asked and certainly never answered: *What will be the culture of abundance?*

2.

The great mistake of the culture which we now call 'modern' is that it looks backward toward death and not forward toward birth. It regards the present as a *Finis* at the end of a book; it does not realize that the present is simply the notes for the first chapter of a book that is about to be written.

The mistake of Oswald Spengler is characteristic. Spengler was one of the few philosophers of the transition which he picturesquely called the decline of the West. His observation and even insight—considered *as poetic realization of what he saw*—is powerful: his description of megalopolitan man and the dry sterility of his sand-heap culture explains much, from Ezra Pound to the *New York Times*. But he shared the confusions which the modern mind forever draws from its premises; he was not imaginative or vital enough to understand the difference between the stage of technology and any previous human stage. He talked of it as another 'winter', perhaps so profound as to be the last. The true analogy, however, was that it initiated *a new geologic era*. It is the end of a mesozoic age—so that the very nature of spring, summer, autumn, and winter will be forever changed. It is not merely the end of the old, but *the beginning of a different kind of new*.

The first principle of the new culture, then, is this: *the present is not an end but an origin.*



TO CARRY 20,000 TONS A DAY!

Here is a 60 inch, 10 ply belt, 1,355 feet long, weighing 29,215 pounds, all in one piece. It is the largest belt in the world and will be used in a prominent mine for handling ore. (United States Rubber Company Photo).

Thus whoever talks of death and futility and the end does not belong to the new culture—though conceivably he might prepare for the new culture by the destruction of the old. (A time comes, however,—*and it has arrived,*—when destruction of the old can by its lethal emphasis become prevention of the new. Long ago I said that such a man as Mencken was the most reactionary force in America, drugging creative effort with the opium of futility...that reaction was triumphant behind castor oil in Italy and behind *Prejudices* in America.) Whoever concentrates on the casualties of the age of poverty and builds upon their ruins a mood of negation and despair does not belong to the new culture. (Such was Masters' activity as ouija-board for the unfortunate dead of Spoon River; such A. E. Robinson's celebration of waifs, and castaways, and drifting nonentities with a small satanic kink.) Whoever sees the worlds go 'like old women gathering fuel in vacant lots', and seeks an escape from futility by a cerebral return to a ghost-religion, does not belong to the new culture. (Page T. S. Eliot.) Whoever in style and idea accepts poverty *and individual riches* as essential circumstances and motivations of human living, and sees humanity in terms of hunger and greed, does not belong to the new culture. (This is the central flaw in Theodore Dreiser's modelling of Titans out of putty.) Whoever writes human behavior down to its lowest terms of speech and character and mood, instead of expanding it toward its exuberant potentialities, does not belong to the new culture. (So Hemingway and Faulkner pull the polar-bear-skin of toughness over their too tender hearts and growl horribly to prove that they are hard-boiled.) The present scene is cluttered by these ambulant ghosts: we seem culturally to be down among the dead men.

Undoubtedly in the decline of the geologic era that spawned the dinosaurs, if those solemn creatures of the slime had a literature it would have been futilitarian. The dinosaurs would have gone around like Mencken, declaring in their quaint Victorian fashion that life can do little to 'change the practical joking of God'; or declaiming like Eliot that they were the hollow dinosaurs, the stuffed dinosaurs; or proclaiming like Jeffers that they were the Buddha of ice and night. They would have returned to the dinosaurian equivalent of Anglo-Catholicism; or forgot their woes by calling everybody not on the subscription lists of the *Dinosaurian Mercury* a boob; or made sonorous propaganda for the Ice Age. But that is all gone now under the prehistoric ooze—all their *Prejudices*, and *Waste Swamps*, and *Roan Dinosaurs* ...and life goes marching on in a new dimension and a new mood. Einstein and Eddington, Beethoven and Shakespeare and Blake, reach out for truths below red and beyond violet. The dinosaurs and their stupid culture of poverty are gone; even the culture of *man's* poverty is going: a different geologic era comes—the clock strikes—human history begins.

The new culture turns from the end toward the beginning: it is an origin. Thus psychologically it will be like the child who is the third stage in Nietzche's great parable of the spirit. First came the conservative load-bearing camel, a beast of burden only; then came the fierce heretical lion, breaking decorums and taboos and winning lordship in its own wilderness of the *Nay*.

But last comes—and must come if we are to have the *new* culture—the stage of the child: 'Innocence is the child, and forgetfulness, a new beginning, a game, a self-rolling wheel, a first movement, a Holy Yea. Aye, for the game of creating, my brethren, there is needed a Holy Yea unto life: *its own will* willeth now the spirit.' The culture of abundance will be, indeed alone *can* be, the age of the child. It will be 'a new beginning, a Holy Yea.'

The new era,—in accordance with the earth's mystical reciprocation of material and spiritual,—will both create and be created by a new culture. It will be both dynamo and symbol. Its mood will be based upon man's mastery of abundance; it will itself integrate and crown economic abundance with spiritual exuberance. It will free itself from the present tensions, in order that it may grow into a new intensity of life. It will cease to be self-conscious, and will become life-conscious. It will be the outward and audible expression of man's physical mastery of the world.

It will turn away from an emphasis on death, the end; it will turn toward birth and the beginning. It will cease to be the culture of night; it will be the culture of the sun.

3.

What will be the characteristic *style* of this culture of abundance, this culture of the sun?

Let us see this style as it has already begun, quietly and unnoticed, in the arts that deal with material things: in transportation, architecture, technology. We must look at these first, and away from art and philosophy, in order that eventually we may look at art and philosophy more wisely and creatively. Consider the new technology: airplanes, streamlined trains, automobiles; really modern factories (those with electric machinery), clean, noiseless, full of the power and the glory; hydro-electricity on a Continental scale; modern city planning, functional and air-conditioned buildings; the latest libraries and schools functional with sun and air; beautifully organized large-scale farms. In them, and not as yet in literature, will we find 'innocence... and forgetfulness...a game, a self-rolling wheel, a first movement, a Holy Yea.' They speak of an origin, whereas literature still speaks of an end. And what are their qualities of style?

Organic integrity and functional strength; the beauty of dynamic simplicity, serving life in lines of power! In them, nothing is *purposely* hidden, nothing is artificially involved, nothing is tortured on the one hand into rococco decoration or on the other into esoteric obscurity: everything is direct, dynamic, lean yet supple. Looking at these things one has a strange sense not of a return to nature, but of *a unity with nature raised to a new tension.* In the presence of a stream-lined train one feels the same lift of the spirit that the great Blake felt when he looked at a tiger: the 'fearful symmetry' is the same; both are a portent of nature that carries us beyond nature. The rippled night of Kipling's black panther, Baghera, is the best symbol for the latest creations of technology. Man has here *become one with* the functional beauty of nature. (Thus nature balances the tree in proportion of leaf and trunk and root; thus nature fashions the bird for the air and the jaguar for the jungle.) Emerson spoke long ago of things in America 'That will be sung...that will sing themselves.' Here they are! A beautiful clear hard strength, an integrity of ends and means, a clear value so vitally implicit that it becomes explicit and also an image and symbol of deeper meanings: such is the style of the emerging technology. If you look at an old-

time locomotive—squat, awkward, absurd with its tall mushroom-topped smoke-stack and its air-bumping lines and ill-balanced weight, you hardly know what value or meaning is meant to be incarnated there: the word has not become substance. But if you look at a modern locomotive you know the meaning at once; you say, without any enigma of thought, *speed*. The value is so implicit as to be explicit: the locomotive is symbol and image; it is a work of art. You know its value as you know the meaning of tiger or butterfly, by living intuition of perfectly incarnated significance.

(Compare with this direct functional beauty and value, the supposed 'moderns' of the cult of incoherence. Set beside an air-cooled, beautifully functional building, such a Eusapia Palladino of literary table-rapping as Gertrude Stein. Modern life moves toward simple clarity, toward dynamic strength, toward communication of value and meaning; she says good-by to all that and makes a glory of confusion. Her literary ectoplasm is a reaction from all that is vital in the new age: it is a return to ghosts. Or compare the later James Joyce, hiding his own confusion under the fog of Esquimaux and God knows what—with the lean hard beauty of a great dam storing up life and power for humanity. What have all his mouthfuls of fog got to do with the age of abundance?)

Style is the man: style is the culture. Lucid and dynamic, functional in the life of the world in order that power mastered may permit economic abundance and spiritual exuberance, the new culture will have the 'fearful symmetry' of nature's energy enhanced by the intellect of man. It will have the style of the turbine that in lucid power quietly pours over the city's night its abundance of exuberant stars.

4.

And what will be the central mood that is the psychological premise of this style?

The mood of mastery! It will be chastened and realistic, yet a mood of mastery. There will be in it none of the nineteenth century's foolish bravado of optimism; none of Swinburne's facile 'Glory to Man in the highest, for Man is the master of things.' There will be no trust in evolution as a cosmic escalator; none of yesterday's glib *assurance* of *progress*. The technologist knows better than Mr. Mencken the 'practical joking' of flood, earthquake, drought, famine, pestilence, cyclone and sun; he knows better than Mr. Mencken the pathos of human stupidity. But also the technologist does not succumb to the old Greek superstition (natural to a culture based only on man-power) of 'Fate' and 'stealthy Nemesis.' Man *can* change 'the practical joking of God'...as Mr. Mencken ought to have known if he employed a razor to shave off the whiskers that *Quarterly* reviewers *used to* wear.... Man finds the world not only malleable, but strangely co-operative: 'Seek and ye shall find, knock and it shall be opened unto you,' is not merely good religion, it is good technology. It can move not only mountains; it can refashion a Continent.

The assurance of possible mastery will transform the central mood of literature. All modern iteration of the fixed futility of man; the resolutely opened mouth and the resolutely folded hands; the sense that life is a birthday candle lighting Vanity Fair...will seem what they are—fashionable nonsense. Man will not expect everything; but he will certainly not (like the 'moderns') expect nothing. He will transcend the equal illusions of our soft hope of yesterday and our hard despair of today, in the synthesis of candid intellect and creative energy.

This hard creative faith will end the soft sentimental illusions of a Mencken describing man as 'A sick fly sitting on a fly-wheel.' It will be merely bored by the iteration of impotent modern men that modern men are impotent. It will say: 'An end to all these Little Boy Blues blowing their saxophones in the Waste Land!' The men of the new culture, turning earth into a garden and a workshop, will not have any time for or any interest in these futilitarians. Will the pathological vicarious suicide of an expatriate fugitive to the parlors of London——

'We are the hollow men,
We are the stuffed men'

mean anything to the technologist of a new world? The driver of a streamlined train, splitting the sunlight at ninety miles an hour; the builders of the hydrology of a Continent; the organizers of great mass farms that feed vast populations with ease as from some cosmos of ordered beauty...will hardly feel 'hollow' or 'stuffed'. Hollow men and stuffed men will go to historical museums where they belong—curiosities like bed-warmers and black mittens.

The new culture of Technocratic man will be full of the mood of mastery. It will say with Blake:

'If the sun and moon should doubt
They'd immediately go out.'

It will say with Whitman: 'I am large; I contain multitudes.' It will say with Thoreau: 'There is more day to dawn. The sun is but a morning star.' It will be haughty to the sun, and refer to the earth affectionately as 'Old top-knot.'

Man will be humbly proud, vitally hard, superbly realistic, cooly powerful; and his culture will speak his soul. The old culture is the wail of the impotent; the new culture will be the poetry of the potent.

5.

Therefore in spirit and content the new culture will be spacious and free. Having at last lifted itself out of the tensions of economic poverty, it will stand above the old battle with brute earth; it will transcend the crude motivations of hunger and money; it will set man's mind free for the true destiny of spirit.

In an age of poverty, men are necessarily 'practical'; in the transitional era when production is abundant and distribution is poor, men are—not necessarily, but morbidly—resolved to emphasize and demand the 'practical'; but in a true age of abundance, men will *be* practical and so they will not have to insist on it. Being actually practical, they can at last be poetic.

For what is the essence of the poetic mind?—That it seeks in experience not a means to a further end, but *realization!* Max Eastman in his superb book on the psychological nature of poetry, makes this forever lucid: the practical mind sees a road as an instrument of the journey; the poetic mind sees the road itself and the experience of the journey.

Now while man struggled with economic need, or with the winning of the abundance which he had created but which was kept from him, naturally he would make his culture utilitarian—the means to an end. He would not enlist his energies in the true life of art: *the realization of life*. Artists would occur as

freaks and accidents; they would be ignored as non-functional, or opposed as nuisances and threats in the struggle for existence. The way of all flesh would so engross the interest of man that there would be little interest or energy for the way of all spirit.

Man would naturally develop a culture that would move in the direction of prose; his prose would move naturally in the direction of naturalism and realism; his naturalism would move naturally in the direction of satire and debunking, or journalism, or savage expression of the worst, or sociological amelioration, or propaganda (whether for the *status quo* or the *flux quo.*) Literature would be largely pathological or largely medicinal—either an expression of the headache of the day-after catastrophe, or medicinal propaganda to remove the headache. There would be little pure poetry, few poets, and no 'great audiences' which Whitman rightly said are the condition of great poets. Poets would be lonely adventurers forever in peril when they were not in obscurity. Men would ignore or hate the thing that poets in the widest sense come to create: *The celebration of Life itself.*

But the age of abundance, being itself practical, will transcend the 'practical'. It will, having set us free from the horrible minor problem of making a living, put us at last face to face with the spiritual and major need of making a life. Hunger and money, the petty dynamics of time, will cease to motivate: we shall have to find the dynamic of eternity. And that will give us new interest in artists like Shakespeare and Blake and Whitman and Villon and Thoreau and Melville and Rembrandt and Van Gogh and Beethoven. It will give us an interest in going beyond them into a new dimension of the spirit. It will be the intense discovery of the intense adventures of life.

Thus the culture of abundance will mean the return of poetry. (Not of *verse* alone. I use the word poetry in the largest sense, to include the truth of the widest art—music, painting, sculpture, creative prose. *Jean Christophe* or *The Forty Days of Musa Dagh,* Thoreau's *Journals,* Van Gogh's *Sun-flowers:* these are all poetry in the width of verity.)

In an integral economy, we shall be able to transfer much more spiritual enthusiasm to art. We shall have time—and need—to celebrate life in itself. We shall—and here Spengler's idea of 'winter' fails to apply to the culture of technology—*break the patterns of modern megalopolitan and cerebral man under an up-surge of love, of joy, of life.* We shall love life again, and enter upon the renaissance of wonder.

Life again will be, in the noble sense, *play.* For the culture of abundance can be at last spontaneous—'a self-rolling wheel.' All the old elemental interests—nature, love, curiosity, the dancing of the mind—will not end, but rather begin on a new plane and with a new mood. They will all be reborn; they will all be as new as earth to a man suddenly born at the age of thirty; they will all demand restatement, re-celebration, in terms of higher scope and voltage. They will no longer be merely candles dimly and fitfully and frailly beautiful, but electricity, lighting man's world with white miracle.

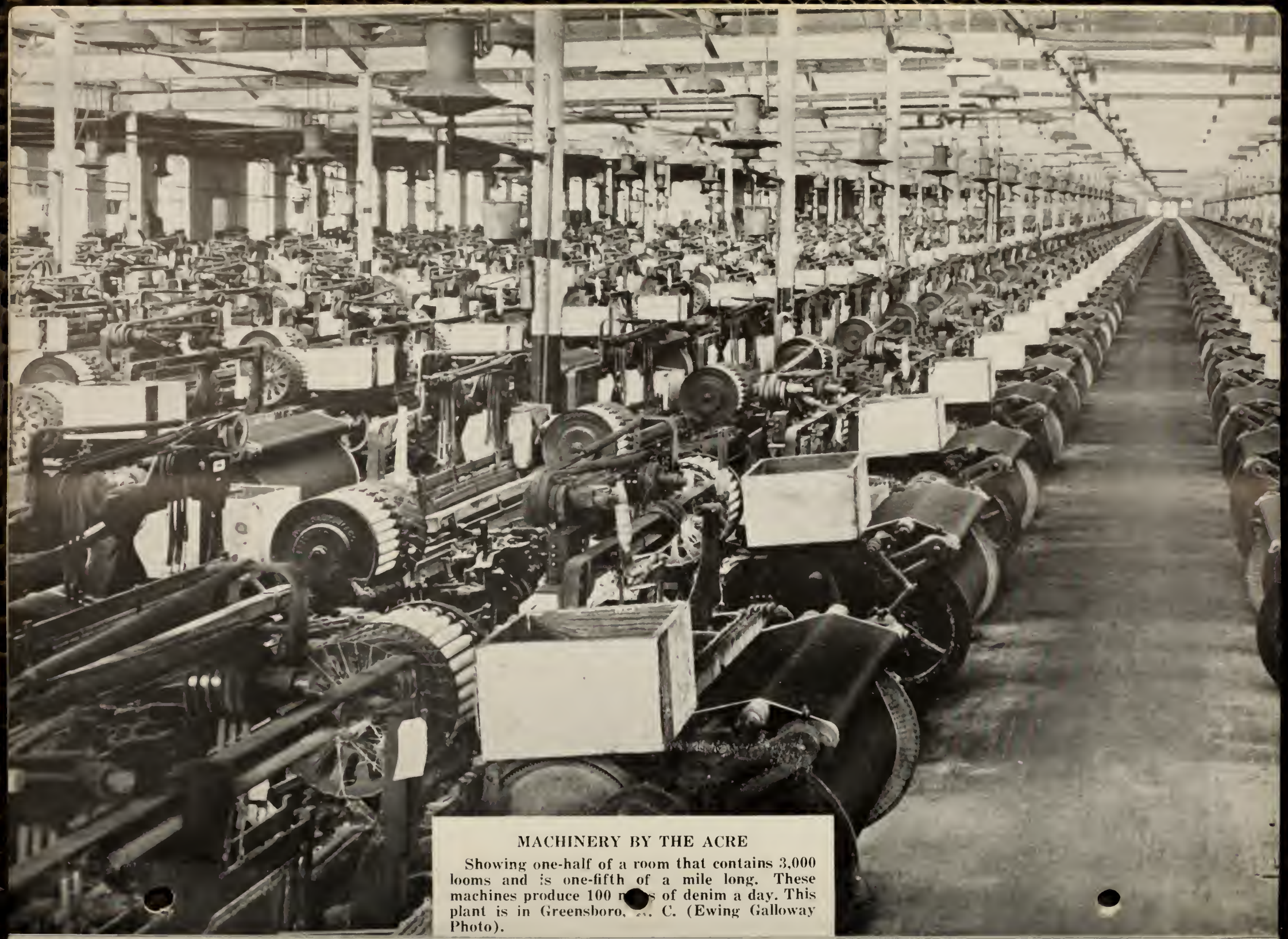
We shall not, for example, scorn Nature: we shall at last be able to love Nature now that she is not our taskmaster but our comrade, not our step-mother but our bride The man with the hoe could not really love Corot's dream-trees; nor Keats the beechen green and shadows numberless in all their Eden-beauty while the hungry generations trod him down. The leaves of grass, the pines around a new Walden, the Andes or the hills north of Boston, the Atlantic arm of Cape Cod where the breakers dig holes big enough to bury a horse, the pussywillows like little snowy mice or the waterlilies drifting like suns in cups of snow...these will be beautiful indeed to the men of the new age—who at last will have time to look at them. Transcending the drag of Nature, we shall be able finally to see the dream of Nature.

Love, too, must be celebrated in the culture of abundance. The foolish Russians dismiss love as a 'bourgeois sentimentality,' a dismissal which is certainly a proletarian stupidity. But love will be reborn as a dynamic, a motivation, a victory; in life, it will become richly possible—demanding in life and in art a new finesse, a new scope, a new depth. Love in the life of abundance will be one of the fine arts. And certainly culture, celebrating and realizing love, will make it a thing of spiritual play, of exuberant ecstasy and noble anguish. Love—of course with new technique and variety—will again become all that it was to Shakespeare: *the central drama of personal life.* Lovers' tongues will sound even sweeter by night than they did in old Verona where Juliet's bounty was as boundless as the sea. We shall know, as Keats inadequately and tragically longed to know, the 'white, million-pleasured breast' of love. The culture of abundance will not say but realize the truth: *Love is a deed.*

Everywhere in the culture of abundance we shall develop what John Cowper Powys calls the 'ichtyosaurus-ego', and delight as he does in the rich sensuous experience of living. We shall do what Thoreau did with the leisure he won by doing without (only we shall win it by *doing with*)—make life an adventure and a poem, full of the wine as well as the bread of the sacrament. We shall loaf in the sun like Whitman; delight in existence like Huckleberry Finn drinking in sun or starlight through his naked hide; love the 'innumerable stains and splendid dyes' as Keats did. We shall expand into exuberance and play; we shall love color, imagery, humor, 'Dance, and Provencal song, and sunburnt mirth.' We shall have plenty of the daily bread: therefore we shall seek the power and the glory. Integral like the lilies in our economy, we shall clothe our lives like Solomon exuberant in the rainbow.

In the culture of abundance, philosophy too will be at last possible. Man's mind will be free from the petty enigmas and the utilitarian tactics of time; it can confront eternity. The three dimensions will be our servants; we can explore the fourth dimension. And we shall have a new technique of mind, too: we shall give the realm of means and ends to the technicians; we shall take the realm of direct experience of living reality for the new artist-philosophers. Our energy will be free for intense direct realization. We shall, like the artist, the mystic, the lover, synthesize intellect and being. We shall enter life directly; we shall not 'think about', but know. Man's mind hungering (as Nietzsche phrased it) like the lion for his prey, will strike that elusive game down and drink the hot blood of truth.

And finally, the essential and whole spirit of the age of abundance will make culture fluid and free. Functional and experimental in style, masterful in mood, playful and free in spirit, revitalizing old reality with a



MACHINERY BY THE ACRE

Showing one-half of a room that contains 3,000 looms and is one-fifth of a mile long. These machines produce 100 miles of denim a day. This plant is in Greensboro, N. C. (Ewing Galloway Photo).

new height of being, the culture of abundance will break all patterns of mechanization. The machine, then man's servant, will no longer be man's god. We shall see machines for what they are—an instrument and a means; we shall not any more regard them as an end or a creator. Mechanism will be less persuasive as a creed in philosophy and art. Mechanization will be less possible, for man's vitality, man's dynamic of joy, will be greater than ever before, and will flood all static and sterile patterns with the crimson energy of the spontaneous blood.

The age of poverty was like a tree planted in sandy soil that must use all its energy or most of its energy simply to grow at all. The age of abundance will be like a tree planted in rich soil, that can grow without strain and can bourgeon freely into beauty of flower and splendor of fruit.

Thus the culture of abundance will be the culture of a *fourth dimension.*

Having mastered the riddle of how to make a living, man will face the adventure of making a life. He will rise from the three dimensions of practicality and time, into a fourth dimension of creative being. He will master the way of all flesh; he will be ready at last for the way of all spirit.

Long ago the first Columbus discovered our physical America. Now the work of that Columbus nears final completion—we are creating and building the physical America whose outline and potentiality he discovered. And when the great work is, by Technocracy, at last finished, then we shall be ready—as already we are impatient—for the Second Columbus, the Columbus who shall create into discovery *the America of the mind.*

Shall we not, with Whitman, bid our daring souls to shake out more canvas, and to sail on, sail on, till we see the surf flashing white round the San Salvador of the new culture, and touch, ourselves, the Second America?

Power Development From Recurrent Resources

By A. De Lisle (R. D. 11233)

FOR thousands of years man existed at a constant energy level. His ability to do work was determined by the limits of his own muscles, which seldom exceeded the rate of one-tenth horsepower for a maximum period of eight hours. In the last century, although extraneous energy at man's command increased his power reservoir 150-fold, the rating of the human engine itself still remained at its low level of one-tenth horsepower.

Today that low level has been raised. The advance of technology has at last brought the human body to an important place as a converter of energy. In one clean stroke, technologists have doubled, perhaps tripled, the efficiency of the human engine.

Harbingers of this advance occur in occasional newspaper headlines. 'Municipal Plant Generates Power from Sewage.' Already in Peoria, Ill., Durham, N. C., Harrison, N. J., and several other cities, sewage-disposal plants have installed power generators which are run by the gases given off from fermenting sewage.

As an energy-converting mechanism, man today has become more valuable for his excreta than for all the work he can do with his muscles.

Technocracy points to this bit of news as significant, not because it is important in itself, but because it focuses attention on man's most abundant source of recurrent energy, hitherto neglected. This energy source—the carbohydrates contained in the refuse of cities, industries, and agriculture—is seldom given consideration; yet its potential is of a magnitude almost unbelievable, and to convert it would alter the entire social structure.

In order to understand fully the significance of this energy source, it is necessary first to know the elementary chemistry involved. The key can be expressed in the following simple chemical formula:

$$C_6H_{10}O_5+H_2O=3CO_2+3CH_4$$

—which, in the language of the layman, merely states that when water (H_2O) is added to cellulose carbohydrates ($C_6H_{10}O_5$) under conditions favorable to chemical reaction, the resulting products are carbon dioxide ($3CO_2$) and methane gas ($3CH_4$).

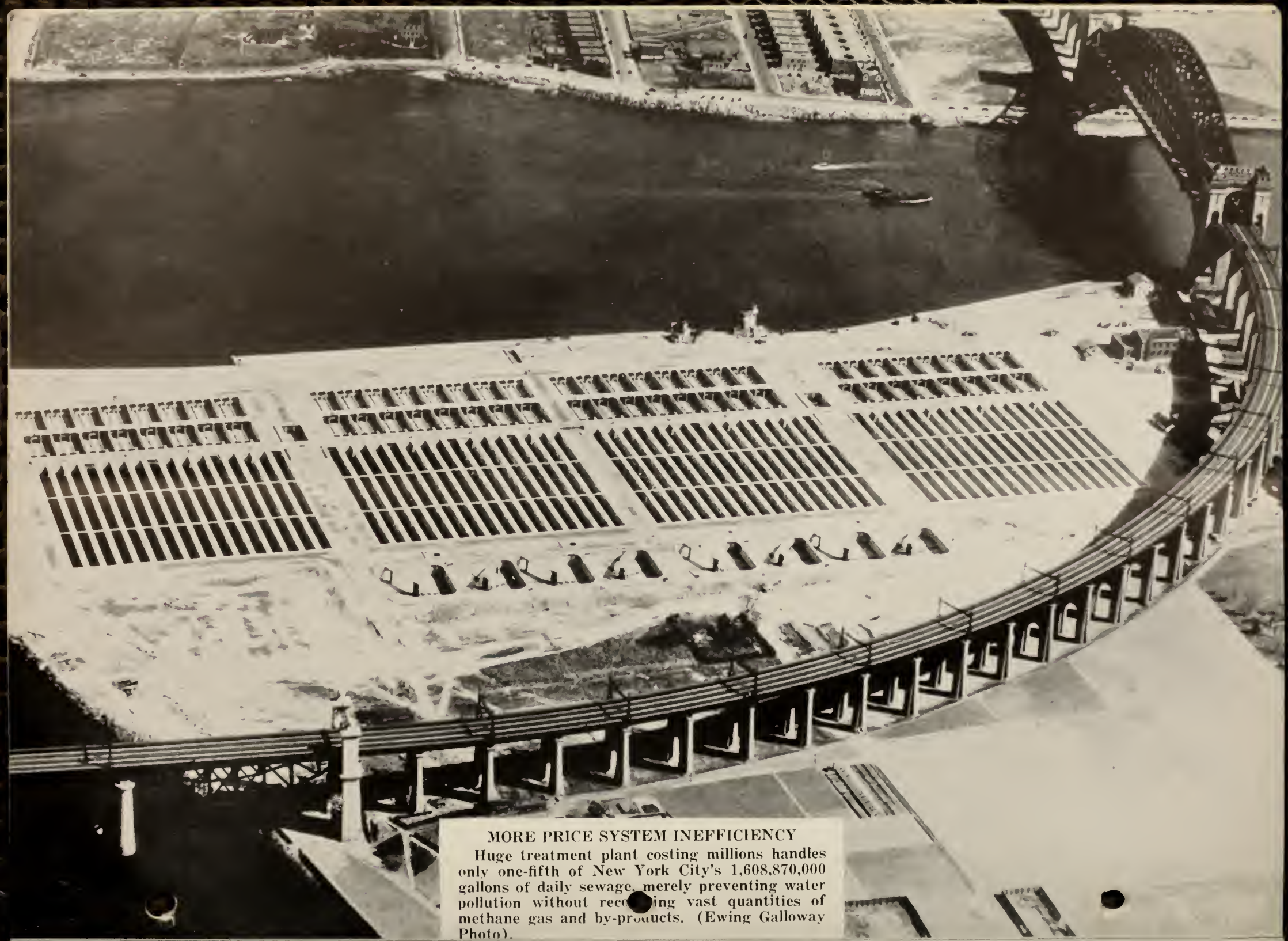
The significance of this formula becomes more evident when the following facts are considered:

1. Cellulose carbohydrates are contained in large quantity in such waste products as municipal sewage, pulp-paper mill residue, ordinary wood, cornstalks, wheat straw, sugar-cane pulp, and other vegetable by-products of little or no value today.

2. The chemical change of these cellulose carbohydrates can be brought about at a very low energy cost by merely adding warm water and allowing anerobic bacteria (found in ordinary mud) to ferment the mixture.

3. The products resulting from this fermentation—carbon dioxide (dry ice) and methane gas (marsh gas)—are extremely valuable. The first is a refrigerant which can be used for the quick-freezing and economical transportation of perishable food-products. The second is a fuel (the principle ingredient of natural gas) with a heating value of 23,000 B. t. u. per pound—nearly 60 percent greater than the heating value of high-grade coal.

At the present time this cellulose fermentation process



MORE PRICE SYSTEM INEFFICIENCY

Huge treatment plant costing millions handles only one-fifth of New York City's 1,608,870,000 gallons of daily sewage, merely preventing water pollution without recovering vast quantities of methane gas and by-products. (Ewing Galloway Photo).

has not to any extent been utilized or even considered, except in the isolated cases of the sewage-disposal plants mentioned above. In these cases the process has been utilized only to the extent of burning the methane to generate power. Despite the fact that the operating performances of these plants have proved them practicable, it is not expected that many more such plants will be developed while the Price System lasts. Except in rare instances, the initial monetary expense of such plants is too high to justify the moderate financial economy of operation.

In a saner social system, however, such self-operating plants will be the rule. Developed on a Continental scale, the combined utilization of these plants will add an important quantity to our total energy.

The present methane recovery averages six to twelve cubic feet of gas (52 percent methane) per cubic foot of tank space per day—enough to provide power to operate the disposal plant, with a comfortable surplus for distribution into the public power system. In this connection it is interesting to know that the addition of an unnoticeable quantity of corn meal—say three or four percent—into all wheat flour used in bakery goods would double or perhaps triple the methane potential of the entire population.

In addition to the power savings effected by these plants, the by-products of the process are socially desirable in many other ways. The carbon dioxide, as has been mentioned, can be developed into dry ice for refrigeration. The residue of non-carbohydrate material which is left at the end of the process can be squeezed out, dried into cakes, and used to manufacture plastics or fibrous materials; or it can be restored to the earth as a sterilization agent for 'sour' soil. The water which is squeezed out can be purified and returned to the public reservoirs—thus conserving the fresh water supply and eliminating the menaces of harbor and river pollution.

Besides the energy potential existent in municipal sewage, vast reservoirs of untapped carbohydrate energy are available in the waste products of industry and agriculture.

Almost all industries using wood or other vegetable products have a large residue of waste materials containing cellulose. Of these, perhaps the most important source of carbohydrates is found in the sulphite liquors left over from the manufacture of pulp paper. An idea of the possibilities here may be gained from the following item from the *New York Times* of April 6, 1936:

> 'Power obtained from work of ordinary bacteria was suggested today as a possible addition to man's store of reserve energy by Dr. A. M. Partansky and Dr. H. K. Benson, of the University of Washington at Seattle.
>
> 'Writing in the proceedings of the National Academy of Sciences, they described experiments in which the microscopic organisms in common mud were used to generate methane gas from the sulphite waste liquor discarded by pulp paper mills. The heating value of the gases produced by the fermentation of sulphite liquor, they said, was equal to 47,767,000 British thermal units or 18,730 horsepower hours per ton of pulp paper manufactured.
>
> 'As a secondary possibility the scientists hoped to turn the waste into profits just as coal tar, formerly discarded as useless, is used in making dyes, and as waste gases in oil refineries are converted into gasoline by chemical processes.
>
> 'Anerobic bacteria, the kind that do not require air to live and multiply, furnished the generating force that produced the methane gas. They were obtained in mud collected from lakes, rivers, brackish sloughs, and garden soil, and placed in gallon jars to which were added 850 cubic centimeters of neutralized sulphite waste liquor and water sufficient almost to fill the jars. When heated to 96 degrees Fahrenheit, most of the burnable gas was given off during the first two months of incubation, production running as high as 500 cubic centimeters per day during that period. Hydrogen gas and carbon monoxide were also produced, but in smaller quantities.'

Despite the optimistic tone of this article, it must be pointed out that any large scale utilization of pulp-paper carbohydrates is virtually impossible in a Price System.

The same difficulties, on a vastly more complicated scale, would face any Price System financier who attempted to utilize the waste carbohydrates of agriculture. One cellulose digestion plant is capable of handling the waste products of many thousands of acres of crops. Since the average acreage of farms in the United States was only 156.9 in 1930, each cellulose plant would be dependent upon hundreds of individual farms for its source of supply. The mechanical and bookkeeping difficulties which would be involved in the mere collection of the waste matter are obvious.

In a designed system of agriculture, however, the wholesale utilization of by-product cellulose is a foregone conclusion. With large agricultural units, laid out in the most efficient manner possible, the problem of collection of the waste products will be a simple one. Each unit will probably have its own fermentation plant, supplying both gas for local power and carbon dioxide for shipping the perishable products of the area to their points of consumption.

The surplus gas not needed for local power can be distributed to urban and cellulose-deficient manufacturing areas. The method of distribution will probably be a Continental pipeline grid, such as our present natural gas and petroleum pipeline system, its trunk lines extending over the length and breadth of the Continental area. Such a gas grid could connect all cellulose-producing areas with areas of consumption, assuring a source of cheap power to most of our major industries wherever it might be necessary for them to locate.

To iron out the peak load, seasonal cellulose products such as agricultural crops could be air dried and stored until needed, and it would still be possible to draw as necessary upon inter-connected natural gas reservoirs. The chief constituent of natural gas is also methane.

Gas then would be Continentally available as a fuel for the generation of power. In the combustion of methane and the melting or the evaporation of dry ice the end products are carbon dioxide and water, which would return once more to the soil for vegetable life to reconstruct again to cellulose—a never-ending cycle, valuable to an integrated civilization.

In conclusion it is fitting to point out the conservational aspects of this process. The present wasted cellulose of North America is great enough, if utilized on a Continental scale, to supply nearly all the Continent's present fuel and power requirements. Thus, our precious supplies of non-recurrent coal, natural gas, and especially petroleum—upon which our machine civilization is dependent for fuel and lubricants—could be eked out indefinitely.

Liberal Farewell

By Norwin K. Johnson (R. D. 11834-3)

And he sees across a weary land a straggling road in Spain
Up which a lean and foolish knight forever rides in vain.

—*G. K. Chesterton.*

THE symbol of the lonely Don Quixote, riding for a cause long disappeared, has been the world's best token of futility, but up that same road the liberal rides today, bravely bearing his antiquated weapons and seeing all around him the misty vistas of a landscape gone these many years.

For we can truly say today that liberalism as a means of adjusting the social mechanism or of providing solutions to social and economic problems is as far out of date as the armour-plated knight immortalized by Cervantes. In the world in which many of us were brought up—that world which is gone as completely as is the lost Atlantis—social and economic problems were mainly political, questions of personality, problems for which there were several possible solutions and which often solved themselves. In that world the creed of liberalism, lit by the fitful fire of 'liberty', stood for social justice, for a greater toleration of man by man, and for all of the palliatives that were at that time and under those conditions the only hope for the great mass of toiling peoples. During the late eighteenth and nineteenth centuries the liberal element was to a great extent responsible for many of the reforms that alleviated the sufferings that the industrial and economic trends of the times had brought; but at no time during its history has liberalism been able to formulate any policy of action which would be of benefit in striking at the roots of economic and industrial suffering.

But such a policy is demanded today. Not metaphysical theory but scientific planning. Not stones but bread. And today, after witnessing the changing of the social mechanism by which we live, the liberal, faced with imminent social rearrangement, is caught with empty hands. Like Cervantes' knight his armament is of yesterday.

The problems of the present age are specific, technical, and above all non-political. Most of them are problems that have no possible solution through a political approach. Unemployment, the adequate distribution of goods and services, care of those forced out of productive labor by advancing age, are all economic and technological problems that can only be solved by engineering methodology. Time and the march of events have left both liberal and revolutionist, democrat and autocrat far behind on the path of history. The liberal and those addicted to the buck-passing of political procedure say that Technocracy has no right to proclaim the inadequacy of all forms of political machinery in coping with today's problem. Technocracy answers that so far none of these problems have been solved through a political approach and that the future gives small hope that they can be so solved.

The outstanding characteristic of the statesmanship of the coming era must of necessity be that of decisive action based on factual knowledge obtained from careful, scientific investigation. This method in itself violates a fundamental portion of the liberal's code. Every true liberal believes in toleration, i. e., in the ever present availability of more than one means to a desired end. To this is added as a rider, that to make an issue of any particular course of action is evidence of bigotry. It is this feeling and this philosophy that makes the average liberal the endless discusser and the infrequent doer that he so often is. On the face of it his attitude is plausable but we must remember that we are living in a technical age. All of our problems are technological in their basic workings, and to any technological problem there is only one efficient approach. That is why bridges are built by engineers and not by politicians. We cannot solve technical problems on a basis of opinion and the sooner we realize this the sooner results will be obtained. It is the liberal's inability to think factually that handicaps him so greatly today.

No liberal can be decisive. To make a decision and to act on it is no part of a liberal's make-up. That is why every serious crisis in recent history since the French Revolution has seen authority wrested from liberal hands, not because their intellectual endowments were unequal to the task, but because their temperamental and functional inability to make quick decisions and to follow them through after they had been made, left them easy prey to the more energetic and realistic elements in the opposition. It is interesting to realize that on such occasions the excuses and explanations offered by the surviving members of the liberal control, are always based on ethical considerations. Any generalship that clings to its old ethical considerations will not be trusted with the lives and happiness of large numbers of people.

The liberal has always shown an unfortunate inability to see and appreciate expedient realities. His almost professional defence of democratic and parliamentarian precedure inevitably leads him to suspect any form of social discipline, in spite of the fact that the inadequacy of democratic control is a matter of common knowledge today. Hendrik Van Loon's famous quip 'the only worth while committee is a committee of three one of which is home in bed sick and another of which forgot to come,' is an indication of the disgust of the American people with democratic talkshops.

The liberal loathes the thought of social discipline, and at the mere mention of it indulges in some typical liberal philosophy, and uncoordinated thinking. He is unable to differentiate between words having different meanings but somewhat the same connotation, and falls into a great quandry over the difference between discipline and regimentation.

Probably the person most free from discipline was the solitary savage in the dawning ages of man's life. When the more intelligent of these egoisms banded together for mutual advantage some discipline became necessary. The more highly organized life becomes, the higher a standard of social discipline must be set and it must be remembered that we live in an age that becomes more highly organized every day. Our social discipline must be changed to meet that condition. This discipline cannot be imposed by crude individuals in multi-colored shirts. It is a technical requirement. It is the mechanism of the group to advance and make possible a more civilized and abundant living.

Increasing social discipline we must have; regimentation, the militaristic policing of European scarcity economies, we cannot have.

The American history books have made much of the example of Daniel Boone's shift farther west because a family moving in fifty miles away made things too crowded. When our nation and our civilization was a child we acted and spoke as children. Now that they have grown we must grow up with them. A functional cooperation with mutual, coordinated activity is a sign of an adult mentality just as the panicky fear of anything that might tend to take away a dimly comprehended liberty of action is an indication of perennial infantilism.

Too often, liberal activity is expressed in one of two ways, both of them equally unavailing—either in attacks on local evils in the industrial machine without having the courage to attack the basic failure that permits the evil; or in the advocation of vague and general policies too loosely defined to allow any effective action. The liberal will tell us that liberalism is a great educative force. True. But this is the education of philosophic erudition which too often either fizzles or backfires. One of the most richly humorous of the available examples of such a boomerang was the case of Upton Sinclair's book, *The Jungle*. Written to gain sympathy and relief for the distressed laborers in the Chicago meat packing industries, the book backfired to the point, where completely ignoring the workers' angle, public sentiment was fired to demand pure food legislation.

There is much to be said for an educative force that furthers social action but mere education is not enough. Unless planned action can be instigated upon the completion of that education then it has been wasted. Very little ever gets done that has not been first planned and then pushed.

When the liberal speaks of tolerance as one of the great liberal virtues, his loose speaking encourages endless and pointless argument. Tolerance of the opinions of others is not always a virtue. The engineer need not be tolerant of the opinions of the automobile salesman who makes known his opinion about technical matters of which he knows little or nothing. The liberal believes that there are many problems in the social mechanism today that are not factual in their make-up and are thus a fit subject for conflicting opinion, and it is just this attitude that assists in rendering liberal activity ineffective. If a man whose study has been the social mechanism is not yet aware that all of the phenomena involved in its operation are measurable, his understanding of it cannot be called factual. This technological nature of our modern social mechanism foredooms to failure all attempts to understand it from a political or 'sociological' standpoint.

The liberal can be challenged by Technocracy as a compromising dilettante whose allegiance and effort is never given to anything concrete. The famous liberal open-mindedness is a case in point. But the liberal mind is open at both ends and retains nothing. The main charge against him can well be that he plays with social engineering, that social reconstruction is his relaxation, and that the serious problems of our age are his toy instead of his serious and determined occupation. In this frame of mind his interference is worse than his apathy. Social reconstruction demands more than mere interest or enthusiasm.

In our schools and colleges today thousands of young men and women are being brought up in the tradition of 'intellectual liberalism'. To form an opinion and defend it is one thing. To seek for the facts and reach a conclusion is another. In our educational system of today the liberal method has the 'inside track.'

No one today can hope to be an expert on the whole of our social organization. It is possible however to be expert in that portion of the whole in which your part is played and to have a sufficient general knowledge of the whole to behave decisively and rationally in a changing world. Trained to think factually and with a social discipline of a high order, self imposed because we understand the reasons for it, we can progress. Intelligent participation under technological control has formulated and will instal a working methodology for the solution of our problems. Such a working organization? Yes.

Liberalism? Hail and farewell.

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Clipping Parade

By Clemens Byatt (C. H. Q.)

Railroads

THE giant of American business, railroad transportation, has been in a notoriously bad position for a number of years. The following reveals that its status is not improving:

> 'Inexorable as the tides have been the rising costs of railroad operation since 1932. Prices of materials which railroads buy have gone up approximately 40 percent.
>
> 'Taxes have gone up approximately 25 percent.
>
> 'Wages have risen approximately 18 percent.
>
> 'Increased freight rates are imperative if the railroads are to continue to be the large employers of labor and puchasers of industrial products that they have been in the past.'
>
> —*From an advertisement of the Baldwin Locomotive Works, in the* Railway Age, *December 18, 1937.*

This unfortunate situation of the railroads is further accentuated by a condition described in the *New York Times* of December 29, 1937, which says: 'The first sixty-eight railroads to report for November showed a net operating income which was 52.9 percent lower than the total for November 1936.' Technocracy points out that the situation of the railroads can only become worse, and if the advice of the Baldwin Locomotive Company to buy modern locomotives is heeded, man-hours will be reduced, with a further decrease of general purchasing power, which will not add to the freight or passenger volume of the railroads.

Automobiles

> 'I think things are pretty well at the bottom now . . . We all have to do what we can and look forward to better sales in the spring. I do not see any reason why the better sales will not be there.
>
> —*New York Times, December 29, 1937.*

The above remarks were made by William S. Knudson, President of General Motors, after announcing the lay-off of 30,000 men. No explanation was given for the basic cause of the decline in automobile production. Neither was the overcrowded used-car market men-

tioned. It is much better to express a pious hope for the future.

Electric Power

'. . . elevators filled with passengers stalled in downtown buildings, traffic lights failed, merchants displayed their wares by flashlight, and emergency health and police precautions were taken. Dark gloomy weather added to the city's discomforts. Many automobiles ran out of fuel because filling stations were unable to fill their gasoline tanks. One Buffalo newspaper suspended publication for hours and two radio stations were silent. Six hospitals were without service.'

—New York Times, December 29, 1937.

Had the city of Buffalo, New York, been attacked by a fleet of enemy planes? Nothing as simple as that. The power had gone off, and hundreds of thousands of people were plunged back into the inconveniences of the Middle Ages. For the present, Technocracy leaves the results of a prolonged shut-down of power on a wide scale, due to social upheaval, to the imagination of its readers. The ridiculous position of the so-called 'revolutionists' becomes only too apparent.

Just a Business Set-Back?

'No one can ignore the fact that the indices which presage the economic events of the coming year point downward. These same cruelly frank cycle charts sounded the same warnings in 1929. Those who dared to call attention to them were greeted with hoots of hatred. It was possible to howl down the prophets, but it was not possible to howl down the disaster. It floated in to us upon a tidal wave of rosy assurances about the future . . . Our economic environment is constructed of material and ponderable elements. It is something about which we can and and ought to be realistic. Those who are charged with the responsibility of dealing with events surely cannot afford to be fooled. It cannot possibly be defeated by pretending that it does not exist. It is as easy to pretend that a hostile army does not confront you or that a storm is not gathering on the horizon as to ignore the accumulated energies of an industrial depression.'

—John T. Flynn, Harpers Magazine, January 1, 1938.

Mr. Flynn, after painting a striking picture of the situation decides that more political legislation of various kinds presents the one and only possibility of preventing the system from sinking down in 'a comprehensive disaster of the first magnitude.' Technocracy points out that the combined legislative effort of all the political governments on this Continent have been unable to prevent any previous depression, and could not stop this one. Technocracy also points out that the present 'recession' is but one more of the oscillations which will increase in frequency and amplitude as a function of time, as long as the Price System lasts.

Banking Technology

'The Pennsylvania Company for Insurance on Lives and Granting Annuities, Philadelphia, recently installed the first automatic bank teller in United States. This week two New York banks followed suit. Built by Recordak, a subsidiary of Eastman Kodak, the machine photographs checks and deposit slips at the rate of 5,000 an hour.'

—Business Week, December 25, 1937.

Even employees of institutions at the heart of the Price System are not immune to displacement by the machine. This is just another example to show how the operators of the Price System, despite their astuteness, keep contributing to their own eventual obsolescence.

Gloomy Finance

'Unlike a year ago, investment bankers face the coming year with dire concern and much uncertainty as to what the future holds for the new investment market. They look for only a slow revival of corporate financing to even normal volume, and do not hesitate to predict a comparatively dull and inactive first six months in the field of security and underwriting. Beyond that, few will even offer a guess. Investment bankers, as do leaders in other lines of business, find it extremely difficult, if not hazardous, to anticipate events or business trends very far into the future because of the complexity of influences at work in the current political and business picture.'

—New York Times, January 3, 1938.

Yes, the situation is rather complex—for the leaders of finance. Technocracy will agree that it is complex —for them.

The Book Review

This is Our World

Paul B. Sears, University of Oklahoma Press, Norman, Okla., 292 pp., $2.50.

SCIENCE, within memory considered to belong only to scientists, now belongs to all of us. Few will venture the claim that the possession is put universally to good use; almost anyone is entitled to assert the contrary. Nationally muddled and incurably lazy, we are slow to assume personal obligations to investigate anything, and collective initiative even in the matter of self-preservation is one of the last things to be undertaken. Like many items of far lesser import, science still might be popularly unexplored were it not for the fact that under a Price System it has recently been proven saleable through the channels of commercialized entertainment. Due to this gratifying saleability, science has successfully invaded literature and with a modicum of directional cultivation threatens to crowd that venerable institution to the ropes. As evidence, promotional organizations like the Book-of-the-Month Club and the Scientific Book Club are busily competing in its presentation.

Technocracy therefore greets with whatever enthusiasm may be due. *This Is Our World*, the rampant challenge of Paul B. Sears for a place in the parade. Extending the field and increasing the pace exemplified in *Deserts On the March*, the author has projected a courageous undertaking. The book purposes to deal adequately with life and its environment, the ecology of plants and animals, and their by-product—the cultures of man.

There can be no question as to the fitness of Mr. Sears to wear the decorations appropriately accorded scientists who have mastered the elements of their material. The substance of the book is composed not only of carefully recorded facts, but shows an unusual

intelligence in their correlation and the conclusions drawn therefrom. The author is also aware of the necessity of relating the field of correlation not merely to the eras incidental to various stages of his discussion, but also to later eras, especially the present; this gives his volume a flavor not at all academic, and the further advantage of establishing a personal contact with the reader. This will, as the book is read, undoubtedly justify its choice by the aforesaid promotional organizations if nothing else does. Mr. Sears recognizes and employs the habits of the times. The rewards, no doubt, will follow his insight.

When it comes to estimating the place deserved by the book as a treatise of major enlightenment, however, it is permissible to doubt that the author has scaled the heights. Perhaps he did not intend to. Perhaps—pardoning a Technocratic chuckle—the fact that valleys are more hospitable to man than heights, predetermined him to remain where comfort and assurance are likeliest. But these are the days of pioneers, of daring and of supernal effort; and no Technocrat can forbear to point out a lead when the opportunity for scientific solution has been declined or unsuspected.

Mr. Sears bears credentials. Past functional performance in his own field of specialization assures him of a respectful audience. He himself states, in his preface, that he has 'tried to write somewhat differently from the way in which anyone to my knowledge has written.' Since such a statement is immediately interesting it would not have been immodest for him to have specified the character and degree of differentiation. As it is, one is left to deduce it from his book; and it is not difficult for any conditioned Technocrat to characterize and sum up the situation. Succinctly it is: Mr. Sears is aware that the patterns he traces are definite components of a definite social progression to which the way is pointed by inherent scientific facts. Realizing this, he fails to finish what he starts. To make this point as clear as possible, we shall mention a few of his more definite realizations.

He knows, and emphasizes, the penalties of waste. He knows, and emphasizes, the consequences of a diminished water table; the foolhardiness of excessive timber stripping; the stupidity of ploughing grasslands; the vicissitudes of climatic conditions, and their consequences; the dependence of human progress on mobility. He knows that 'uncivilized' races and areas live and advance slowly, with a plentitude of unexploited resources. He knows that technology necessitates research, exploitation of resources, and an increase in the tempo of living. He realizes that the lack of synchronization between physical laws and human violations bodes ill to our present civilization, or 'cultural pattern' as he terms it. He wonders if it is 'possible to have some greater intention behind all the activities of the human community? Is it necessary? How can it be created and guided?'

He is aware, therefore, of many of the more important components essential to serious consideration of both physical and human progressions as related to problems of life and living today. Presentation is seldom inadequate and often penetrating. One looks for his precision of detail to justify the time and effort spent in statement and depiction by perpetuating itself in an equal precision of prognosis. The facts of ecology have been presented before; implicit in such presentations are the physical consequences of physical processes. Mr. Sears' differential in manner of writing, cited above, is not enough of a departure unless it accomplishes something tangible.

It may be remarked that the first two divisions of the book, dealing with inanimate nature and living nature, are virtually free from the necessity of criticism except for a few philosophic or romantic excogitations. The material and style of these parts possess definite gusto and pace, a result undoubtedly aided by the fact that the treatment of material here demands no particular consideration of the human equation. It is here, also, that Mr. Sears gives direct evidence of his awareness of certain significant shortcomings of the present social mechanism. A quotation or two (all italics ours):

> 'How often are we reminded that we are all passengers on the same planet, and that the injury of one means the suffering of all? Instead we see, from the smallest precinct on out, a consistent use of the ancient, cheap, easy and brutal maxim—"Divide and Rule." Sow discord and suspicion among classes and groups, divert their attention to details, and power is the reward. In the language of the swimming-hole: "Get the boys to fighting over a stick of candy, and you can steal their pants." It is a trick that is as musty as an old damp biscuit, yet it works as well as ever. It is the pushbutton of political life. *But it is also a fatal device* in a world hurtling on towards disaster as our world is today.
>
> 'Thus far we have been talking of symptoms. We could have named many more. We could, for example, have spoken of the commercial fabric of modern society where money, the symbol, has become the reality. A means, and instrument, devised for the measure of realities, we mistake for the end in itself. *In terms of energy and materials* this is a fallacy . . .
>
> 'Science . . . holds out to us the promise of an end to the blind struggle of trial and error. Through her aid we are able to control the physical . . . world about us, warping it to our own needs and desires. Here, it would seem, is release from any possibility of the fate which has menaced all civilization in the past.
>
> 'But the trouble is we have not . . . listened to the scientist . . . He has been *kept in the workshop as a trouble-shooter, not invited to sit with the board of directors* . . . He has been caught young and subjected to an intensely narrow and specialized apprenticeship. This has made him tremendously efficient in a narrow range, but has clouded his vision . . . and his knowledge of his own responsibilities,
>
> 'Even his simplest services (the scientist's) are based on a principle which we choose to disregard—that of *understanding*. . . . His greatest service is that of an interpreter.'

It is refreshing to run across material of this sort.

But the third and final division, dealing with the 'Pattern of Human Cultures,' fails signally to achieve similar adequacy. It misses fire by leaving the reader short of any definite solution and concludes the book on a most curious and unsatisfactory note. Technocrats, who have seen this happen frequently in other 'books of knowledge,' will not be surprised. But it is the duty of Technocracy to dispel fog wherever it occurs until the air of North America is swept clear of mist and purified for action.

Despite an evident intention to limn clearly the situation resulting from the development of technology, the portion on the 'Pattern of Human Cultures' is characterized by a disquieting incomprehension of the possibilities inherent. The effect of this portion is to imply that all the disadvantages of functional imbalance, waste of resources, control by credit, and other bedevilments of our anarchistic economy are inevitable and apparently to be viewed with, at best, an admixture of wonder, alarm and mystification. The pace of the narrative

here lags and is further impeded by a relapse into inaccuracies and empiricism, both unwarranted if the author's previous exactness is the measure of his endowment. What shall be said of a scientist who admits, for instance, that democracy, is 'utopian,' yet clings to it as a concept worth discussing, and this after observing that it is never so efficient as authority?—who states that the pattern of the Russian Revolution is dependent on the years of careful, devoted, *intellectual* work which preceded it?—who, after discussing every conceivable ramification of social inference stemming from a mathematical estimate of the resources and terrain available per individual in North America, calls for a 'reservoir of a great common morale' as the *only* solution? What shall we say of a scientist who once more labors the irrelevant institution of democracy and, detailing its traditional advantages with the faithfulness and insistence of a high-school oration (yet wailing that it does not supply happiness), states that 'there is no simple answer, *of course*, and never will be?'

And further, our suddenly unaccountable Mr. Sears informs us that 'the world has . . . come to learn that no broad and synthetic attack upon any problem involving life can proceed with the mechanical perfection and smooth deduction which are the delight of mathematics and her handmaiden, theoretical physics.' One does not have to be a Technocrat to regard this hazardous declaration with outright suspicion. And a definition of 'theoretical physics' would certainly be instructive, also. Possibly there are also 'theoretical energy' and 'theoretical thermodynamics'? We have no intention of being unfair to Mr. Sears, whose book, as we have foreseen, is sure to sell in quantity. It is only a pity that the quantity should be unbalanced by any lack of quality.

There are other deviations from scientific usage, such as the unnecessary employment of qualitative adjectives like 'horrible,' for instance; the inclusion of philosophic concepts such as 'hope,' and some instances of inexplicable reluctance to give the scientist his due as the guardian of social control. To hold back this due at the very end of *This Is Our World*, after previously proving the supremacy of science by the very act of writing it, is not in keepng with the dignity implicit in being a scientist; it approaches, as an unpredictable phenomenon of Mr. Sears' conjuring, the sensational. There are 292 pages in this book. On page 291, as the conclusion to a professedly scientific performance, we find this final paragraph:

> 'Science can bring us to the threshold of this fact' (the efficacy of a great common morale) *'but there its power ends.'* (Italics ours.) 'Achievement beyond that point rests with the creative artists of our civilization. . . . Here, indeed, is purpose in all its glory. Let the artist in public relations, in music, painting and poetry . . . use to its limit the material close at hand—that of his region. Let him see that he should be about the building of a great and lasting culture.' . . . 'If he will, *he most assuredly can point the way, and a grateful people will follow in his wake.*'

This, certainly, is news; and should give the greatest encouragement to all musicians, painters and poets, who could never get what was coming to them, anyway. It will, doubtless, also overflow the coffers of the Book-of-the-Month Club. Since by such efficient distribution media, coupled with the enthusiastic reviews Mr. Sears is certain to receive, a compilation of primarily essential scientific data will at least stand a chance of being widely read, Technocracy will indulgently waive speculation as to whether the above-quoted conclusion is apostasy or merely time-serving.

—Allan L. Langley (R. D. 7340-1)

A B C of Agrobiology

O. W. Willcox, Ph.D., W. W. Norton & Company, New York, N. Y., 323 pp., $2.75.

Efficiency of the agricultural industry is well recognized as being far below the technological standard obtainable in other industries. The farmer under pressure of scarcity economics continues to despoil and to waste the chemical and water resources available in tillable soil acreage. The contributions made by agrobiology toward remedying these conditions makes this book by Dr. Willcox of more than ordinary significance to the growing body of knowledge concerned with the conquests of science to 'enhance man's dominion over the material conditions of his existence.'

Previous discussion by M. King Hubbert in *Technocracy*, A-7, of the principles of agrobiology as set forth in two previous books by Dr. Willcox, *Reshaping Agriculture* and *Nations Can Live at Home*, obviates the necessity for a more specific analysis of the mathematical and structural considerations of this comparatively new science.

This volume confines itself specifically to the field of agrobiology as a science, and discusses its history, postulates and application. It does not involve itself—as the previous volumes of Dr. Willcox did—in its social implications. The scale of soil fertility, the sources of frustration, the evaluation of water, the mass action of plants, the quantity and limits of plant life, public soil science, and agrobiologic equilibria are all carefully considered. For serious students a chapter on mathematical details, and an informative appendix on fertilizers round out the book as a reference and text. It is an important and significant contribution to the advancement of this branch of science.

Dr. Willcox describes agrobiology as a 'pure science' concerned only 'with the eternal verities of Nature.' It acknowledges no 'taint' of economics and never looks at a bill of costs or a market quotation. The scientific agrobiologist seeks out and establishes the scientific principles of plant nutrition, and is totally indifferent as to whether these principles are or will be of the least use to anybody. He describes the function of the agrobiologist as the formulation and utilization of the laws of plant growth which apply to *all* plants that grow *anywhere;* and the discovery, interpretation,, and reduction to practice of those principles of agrobiology that are independent of climatic and cultural conditions, and are even independent of the special or superficial natures of the plants themselves.

Building on principles established by Liebig, the founder of agricultural chemistry, Wagner, the agronomist, and the work of Mitscherlich and those who, with him, have raised agrobiologic science to its present level, Dr. Willcox expounds the metrical basis for agriculture. He thus upholds in his field the basic postulate of Technocracy, *that the phenomena involved in the functional operation of a social mechanism are metrical.*

—Paul B. Corr (R. D. 7340-1)

In The Field

ON August 20, 1937, the third Howard Scott Continental Tour started from New York; four months later it was finished. Accounts of the meetings, and the general progress of the Tour were currently published in the various Section magazines of the organization, and in bulletins issued from Continental Headquarters. Numerous organizational results have thus already been published, but as they continue to pour into C. H. Q., it is impossible to give a complete summation of the effects. Responses arise daily from innumerable localities and increasing numbers of letters of inquiry and applications for membership swell each day's mail.

Organizer's outfits, Field Organizer's permits and Section charters are being issued to widespread points. 'Follow-up' tours have taken place; more new speakers are being authorized; new Study Classes started; general instructions, guidance and advice is being sent out; all of this representing a rise above former activity, and all of it involving a sharp upturn in the curve of correspondence, shipping, coding, classifying, indexing and filing at Continental Headquarters and in the Regional and Section offices.

This process of growth accentuates the importance of Technocracy's unique organizational set-up —a closely knit, coordinating network of units, all operating through a Continental Headquarters under functional control. Technocracy operates efficiently today, with the minimum of office space, personnel, equipment and cash. No organization has accomplished more per dollar of expenditure than has Technocracy, and each year tells a story of obstacles surmounted and new territory gained.

For our readers who are not yet familiar with the details of the Tour we cite some of the principle statistical features.

The Tour embraced an elapsed time of 124 days, during which time the grey-colored car of 'CHQ Technocracy Inc.,' covered 14,634 miles. In this period, Howard Scott, Director-in-Chief of Technocracy Inc., lectured in seventy different cities and towns in United States and Canada—forty in the United States and thirty in Canada. A total of 141 lectures, not including numerous private conferences and newspaper interviews were given. Among these were 32 special dinner meetings, sponsored by Sections of Technocracy, or various engineering bodies. Twelve radio broadcasts were given, carrying Technocracy's message to an unestimated number of people.

It is difficult to visualize the territory covered by the Tour and yet realize that even then it did not embrace this entire organization. From New York, in a series of gigantic west and north steps the Tour proceeded to Edmonton, the most northerly point on the itinerary, then to Port Alberni, B. C., the farthest west, and San Diego the farthest south, then back via a series of meetings to New York. Invitations to Mexico City, to Minnesota and to Chicago had to be refused. Technocrats in such widely separated points and areas as the North West Territories, Alaska, and even Panama could not be visited. Numerous groups were forced to travel distances up to one hundred and fifty miles to the nearest lecture point.

Many thousands paid admissions to lectures and dinners, with attendances ranging up to a maximum of 6,200 at a single lecture. The average attendance at the public lectures was 511. A conservative estimate of those who either heard about or read of Technocracy through the Tour by means of advertisements, newspaper reports and radio is placed at 14,000,000.

Several outstanding general features of the Tour can be noted, one of which was the changed attitude upon the part of the public. Three years ago Technocracy received a mixed reception, with frequent incredulity, scorn and opposition. These reactions were missing entirely in 1937. It was evident that the Technocrats were no longer considered to be a new variety of utopian dreamers, writing books, here today and gone tomorrow. It was evident that the previous confusion and doubt re the non-political character of Technocracy was gone. People now accept the factual basis of a non-political, dynamic organization that has a definite social objective, and a policy of operation. The prevalent attitude is one of respect and agreement. All audiences were hungry in their desire to know more. Audiences were comprised of representative cross-sections of each community—mechanics, bankers, farmers, ministers, teachers, laborers, machine-operators, office workers and salesmen; rich as well as poor. Technocracy has no special appeal for any class, creed or race, and Technocracy Inc. is being built of all types of people.

Another feature of the Tour was the esprit de corps exhibited by the membership in the eleven states and four provinces where lectures were held; a vitality and verve demonstrated by the effort expended, and the efficiency shown in making the Tour the success it was; also by the enthusiastic reception given to the Tour Party, and by the systematic 'follow-up' work immediately commenced by all Sections.

A third feature was the volume of literature distribution which exceeded all expectations comprising approximately 30,000 pieces including both those sold and those given away.

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Evidences of the stimulus given by the Tour are seen in some resultant Section activities, selected at random as follows:

12349-1.—Of particular significance was the 'follow-up' tour undertaken by W. E. Walter, capable and well-known director of this Vancouver, B. C., Section. On December 15, Mr. and Mrs. Walter left Vancouver in their grey painted, vermilion lettered 'Technocracy automobile.' Their route led them down the Pacific coast to all the important Sections north of San Francisco; then inland to Fresno, Bakersfield, Hinkley, and Las Vegas, Nevada; then to a series of meetings in Arizona and back to the coast at San Diego. A ten day stay in Los Angeles was followed by another series

of meetings north to Vancouver. Twenty-five lectures, plus several delivered by Mrs. Walter to the ladies were given, in addition to numerous membership meetings. All Sections were enthusiastic in their appreciation of the assistance given to them by the keenly analytical presentation of Mr. Walter, on this two months' tour. Section magazines will carry detailed reports.

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12342-1.—This new Section at Grants Pass, Oregon was one of the first to complete its preliminary organization work and apply for a Section charter. It will assist the growth of the two other new groups in nearby Ashland and Medford.

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8141-2.—Jumping part way across the Continent, we look in upon the activity of this Cleveland Section, and find that Field Organizer E. A. Peterson, visiting from far away Eldred, Saskatchewan, assisted them in arranging a public meeting and radio broadcast in Detroit, Michigan.

●

8141-3.—Akron's first Section is cooperating with 8141-2 to extend the influence of Technocracy in this important industrial center.

●

12248-2.—Back to the Pacific again and we see Bellingham priding itself on three cars in the official grey 'make-up,' and helping two other growing Sections at Lynden and Ferndale, Washington.

●

12349-1.—Reports an all-time high in literature distribution with a total of 69,680 pieces, an increase of 51.3% over the previous year. During 1937, 12349-1 also sponsored thirty public lectures, and reports that seven groups were started in and around the city. Not bad for one Section!

●

9749-1.—Winnipeg's active group of lady members, who strengthened by the stimulation of the Tour—specifically by participation of one of their own kind, Virginia Glendon—staged their most successful social evening. Professional artists and band contributed their time, and a healthy surplus was realized—to the gratification of the treasurer.

●

12249-1.—Technocracy's most westerly Section, in Port Alberni, Vancouver Island, has just been chartered, and is already considering a Technocracy periodical, enlisting the help of Victoria and Nanaimo.

●

9738.—A. H. Fitch and group in this mid-Kansas town are having a busy time with the new groups in surrounding towns. Members here publish considerable literature for widespread distribution in Kansas.

●

9539.—C. J. Rutledge, the new organizer in Topeka, Kansas has a fertile field to work on, and rapid development is expected.

●

11732-1.—This Section, producer of the 'Southwest Corner' has moved into new headquarters in the down town district.

12245-1.—Portland Section has moved into new, centrally located headquarters.

●

10652-1.—Saskatoon called and executed a highly successful area meeting for Saskatchewan Sections.

●

12247-3.—This Seattle Section has initiated area meetings for western Washington Sections. Among plans finding concrete expression is a new periodical, likely to be known as the 'Puget Sound Technocrat.'

●

7142-1.—This Section at Mansfield, Mass., was host to M. King Hubbert, Director of the Division of Education of Technocracy Inc. who paid them a three-day organizational and educational visit, clearing up many difficulties in a series of meetings. It is expected that new groups in Lowell, Mass., and Providence, R. I., will materialize. Mr. Hubbert was accompanied by members of 7340-1, New York.

●

12245-2.—Camas, Washington, came through 'with a bang,' reaching charter strength in record time, after the Tour.

●

7340-1.—This New York Section, in addition to its effective work in the metropolitan area is carrying on organizational work in other centers. On January 29, Field Organizer, A. L. Langley, and other members visited Philadelphia, where a public lecture was given and important organizational work was carried out.

●

11353-1.—Edmonton has electrically transcribed ten lectures by G. D. Koe, which are being broadcast over CFRN, Edmonton, every Sunday, from 3:45 to 4:00 P.M. MST. They will also be broadcast at a different time over CFCN, Calgary, the most powerful station in western Canada. When the series of broadcasts is completed the records will be available to all Sections of Technocracy Inc. for broadcasting in their areas.

●

Note: Please send in notices of interest for this department (on separate enclosures). All will be used for which there is space.

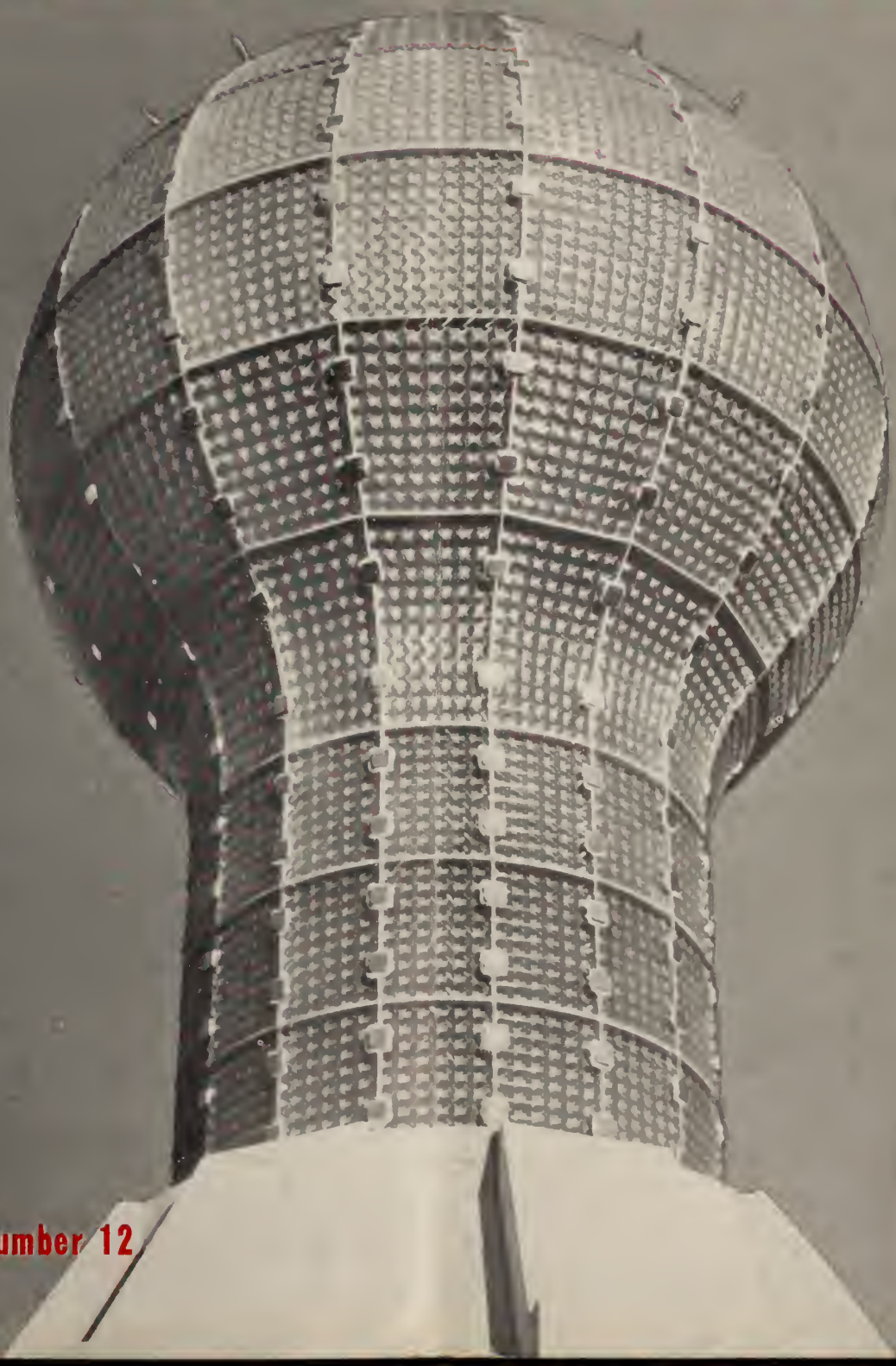
EXPANSION BENDS IN OIL REFINERY

(Front Cover) Fractionating towers on cracking unit showing expansion bends. (Ewing Galloway Photo).

ANOTHER CAMERA STUDY OF OIL REFINING

(Back Cover) The photo shows absorption towers of the naphtha recovery plant at the Bayway Refinery of the Standard Oil Company of New Jersey. (Ewing Galloway Photo).

TECHNOCRACY



Series A, Number 12

15c

TECHNOLOGY IN GLASS FIBRE PRODUCTION

Glass fibre, invisible to the eye, is just being formed on this machine. Gathered on a spool the fibrous glass thread is then subjected to standard textile finishing operations on textile machinery. (Corning Glass Works Photo)

TECHNOCRACY

The New America

OFFICIAL MAGAZINE OF TECHNOCRACY Inc.

Editorial

THE history of the human race is a story of toil and scarcity. Throughout the thousands of years of its existence, humanity passed through a welter of strife and poverty, out of which glimmered fitfully numerous philosophies of defeatism, and more numerous philosophies of equally useless hope. By the conclusions of these philosophies, humanity was consigned to perpetual hardship and misery on this earth. The lot of man was limited to a low plane.

Today, over the greater part of the world's surface, humanity is in this same historic position, still slaving to produce its physical needs by human toil, still bound by the limits of its energy conversion. We see the sweating masses of India and China in their primitive agrarian economies. We see the cramped and toiling peoples of Germany, Italy, France, Japan, and Britain, with their small-scale, relatively crude industrial establishments, hard labor and long hours of toil. In these areas, the philosophies of old now flare into abortive action for better living, led by futile leaderships; but the basic method of producing physical wealth is not changed, and the poverty, toil, and strife remain.

Here on this Continent something entirely new has come to pass. Only this Continent today, presents a different picture. We live in an era where man no longer produces his physical wealth by the sweat of his brow, but by an entirely new process—the conversion of extraneous energy! By the technological use of abundant sources of coal, oil, and metals, a physical standard of living far beyond the dreams of the masses of India and China has been achieved. Technology has arrived! A new day is born!

Yet a paradox exists. The results are not what they should be. Here in this paradise of technological productivity and abundant resources, a conflict exists—the conflict between the age-old method of producing physical wealth with a maximum of human effort, and the new method of producing physical wealth with a minimum of human effort. Out of this basic conflict, arises numerous others which result in such a festering mass of human privation that even the rest of the world is forced to pause in amazement. The shortcomings of our lauded civilization are world news. To list them would require pages.

This Continent, where a physical paradise is within sight, within reach of all the people, and yet where unnecessary toil, privation, waste, and hunger still exist, presents in this situation a unique opportunity for great leadership. Is this leadership evidenced in the fields of politics, finance, commerce, industry, or education? Never has such a sterility been witnessed.

A greater undercurrent of social unrest occurs on the Continent of North America than on any other area of the earth. The people of this Continent already have *more,* but they are full of the knowledge that they can get even more!

The institutions rooted in that age-old method of producing wealth will not and cannot supply the leadership required today.

Our social scene shifts rapidly. Technology, the means whereby men live, is responsible. The greatest and only social opportunity to date is laid on our doorstep by this advancing technology. It says but one thing: *apply technology to your social control mechanism.* The impending events on this Continent will transcend all other events in human history; an age the like of which man has never dreamed is on the horizon. Yet national and business leadership is completely dormant. The statesmanship of the Price System is sterile.

Only one organization has rung out a clear challenge across the Continent. Only one organization is preparing to assume responsibility.

That organization is Technocracy Incorporated.

A new civilization for the people of a Continent is in the making. Leadership of a Continent will be supplied for the rest of the world. This must come about within the next few years. Construction is now in progress, and the work goes on.

Technocracy is building for the New America! Technocracy marches on!

In keeping with Technocracy's consistent expansion, the Continental Headquarters of Technocracy Inc., which is also the publication office of *Technocracy* magazine, has removed to larger premises, at 155 East 44th Street, New York, N. Y. This is now the official address of the magazine.

Determining the Most Probable

By M. King Hubbert (CHQ)

AS far back as we have record, and doubtless farther, one of the greatest concerns of the human race has been the problem of what is going to happen in the future. So great has been this concern that in most places and times there has existed a separate priestly class whose special function was to make predictions and to give advice, for a consideration, to the officers of state and the leaders of business concerning the probable outcome of any venture that might be embarked upon.

In the days of the Old Testament it was the prophets who assumed this priestly role. In ancient Greece the priests of the famous oracle at Delphi were oftentimes the principal advisors to the rulers of the state. In the Middle Ages the astrologers came into vogue, and no medieval court was properly appointed without its court astrologer, who also in many instances was the professor of astrology in the local university.

Today, notwithstanding the fact that there are still a dozen or so practicing astrologers listed in the New York classified telephone directory, astrology has fallen pretty well into disrepute. Instead of professors of astrology in our modern state-owned and privately endowed universities, we have professors and departments of economics; and in the place of the court astrologer, or the priests at the temple of Delphi, we now have the Brookings Institution.

The devices of official prognosticators also have varied considerably with time. God descended and delivered his message to the biblical prophets. The priests at Delphi uttered oracular noises while being overcome by the noxious fumes emanating from the hot springs underneath the temple. The tools of the astrologer consisted of such matters as the 'positions of the planets,' the 'horoscope,' and 'the signs of the zodiac.' The economist has the 'law of supply and demand,' the 'niggardliness of nature' and the 'insatiability of human desire.' He believes in 'sound money,' the restoration of 'confidence,' and that one can depend upon the 'natural forces of recovery' to restore things to 'normal' conditions. And above all it is by means of the 'business cycle' that he is enabled to predict with supreme confidence what is going to happen.

It was on the basis of the business cycle that economists were able to tell us in 1930 and 1931 that prosperity was 'just around the corner.' In January 1936, when industrial production was on its way up as a result of government spending, the economists, by a review of the business cycle, were able to show that everything was turning out exactly according to Hoyle, for recovery from the depression of 1873 had come in 1879, from that of 1893 in 1899, and from that of 1907 in 1912—within five or six years in each instance. Finally, in early 1938, after industry had undergone the most spectacular shutdown in American history due to the curtailment of government spending, it was shown that the business cycle runs on a twenty year period (for example: 1873, 1893, 1907, 1921, and 1929), but that there always has been a mid-term 'recession.'

Probably no single subject in all economic literature has been written on more lavishly than the 'business cycle.' Libraries exist upon this subject alone, ranging in technicality from the most elementary discussions, to treatises bristling with advanced mathematics; yet for the last ten years no instance has been observed of an accurate prediction, by means of this method, of any major event in the future, although its adaptability in explaining events that are already past appears unlimited.

The whole fallacy of all such discussions seems to lie in a failure to comprehend, or perhaps to define the concept of 'cycle' and that of 'business.'

In the first place one needs to consider just what is the meaning of the word 'cycle.' The word originally implied the rotation of a wheel. When a wheel rotates it goes through a series of successive positions and finally returns to exactly its original position. If rotation continues with uniform angular velocity, each of these successive positions of the wheel is repeated at equal intervals of time.

Now if we project the position of a point on the rim of the wheel, viewed in the plane of the wheel, upon a piece of paper moving at uniform velocity parallel to the axis of the wheel, we obtain the wave shaped graph of Figure 1, known as a *sine curve.* This curve may be taken as the type example of all cyclical phenomena. The horizontal axis represents time and the up and down motion represents some quantity which varies cyclically with time. From this, it is easy to generalize and to define as a cyclical phenomenon any phenomenon which goes through any sequence of events, returns to its initial state, and then repeats indefinitely, the same sequence of events at equal intervals of time.

When the variation with time of any quantity that changes cyclically is plotted as a graph, it can be shown that no matter what the shape of this graph may be, it can always be obtained by the addition of a suitable number of simple sine curves like that of Figure 1 but of different periods (time of a complete cycle) and of different amplitudes (radius of generating circle).

In Figure 2 curve C represents a cycle of period T_3, which is obtained by adding the sine curves A and B of periods T_1 and T_2 respectively.

The most fundamental thing in all cyclical phenomena is the element of repetition at equal intervals of time. *Cyclical phenomena repeat themselves identically at equal time intervals.* Approximately cyclical phenomena repeat themselves approximately. For example, the temperature in the city of New York rises and falls in an approximately cyclical manner during the course of a year. The pendulum of a clock swings back and forth in a cyclical manner. Astronomical bodies, the sun, the moon, and the planets, move about the heavens in a cyclical manner.

It is this element of repetition in a cyclical phenomenon

which makes it easily possible to predict the future. Once a phenomenon is observed to vary cyclically, and the sequence of events for one cycle, and the period, are determined, it is possible to predict what its state will be at any given time in the future. Thus astronomers predict the positions of the sun, the moon, and the planets into the indefinite future. Eclipses are predicted accurately years before they occur. In approximately cyclical phenomena approximate predictions may be made. Thus we may predict freezing weather in Chicago next December, and the next, and for an indefinite number of Decembers thereafter.

Coming now to the other essential part of the 'business cycle,' we must investigate what constitutes 'business.' If a business cycle is to exist, then that means that some quantity or series of quantities must vary up and down in a cyclical manner as a function of time. 'Business' is a sort of blanket or undefined term used to cover loosely a multitude of things. It refers perhaps more specifically to trade and commerce, but trade and commerce are a composite of such industrial activities as agriculture, mining, manufacturing, power production, transportation, and communication; and all are intimately linked up with the magnitude of the human population. Hence to investigate the changes of 'business' it becomes necessary to investigate the evolution of a whole industrial complex as a function of time.

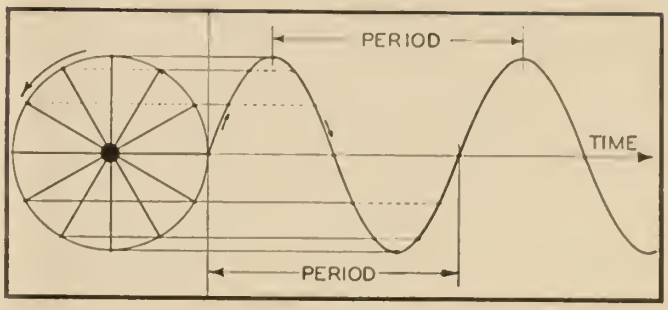
Any human social complex consists of a biological complex of plant and animal species of which the human species is only one. Besides this, the human species indulges in an array of activities of an industrial nature of varying degrees of complexity. The history or the evolution of such a social complex may be regarded as the record of the changes of the several component variables of the system as a function of time. Whether or not the system, or any part of it, varies in a cyclical manner, can be determined only by an investigation of the behavior of these component variables with time, or else by the employment of certain basic considerations which enable us to know the nature of possible variations even if the exact details are not known. Our concern in the present discussion is with the past evolution of the social complex of the North American Continent, though the actual discussion and the data employed will apply principally to the United States. This is due to the fact that the data for the United States are most readily accessible. Conclusions and methods of reasoning applicable to the United States are, however, applicable and valid for the remainder of the area also.

One of the most important of the variable quantities in a social complex is population. As remarked before, the human species is only one of a large number of biologic species coexisting in the area, other species, both plant and animal, forming the essential food supply of the human species.

Figure 3 is a graph of the growth of the population of the United States according to the United States census since the year 1790. It is to be noted that in the entire history of the United States the population has never once decreased; it has only increased with time.

From a biological point of view this is not surprising, for it is a well known fact that all biologic species tend to increase, when environmental circumstances will permit it, at a geometrical rate with time. That is to say, if the population doubles in a given number of years, it will again double within the next same number of years,

FIGURE 1



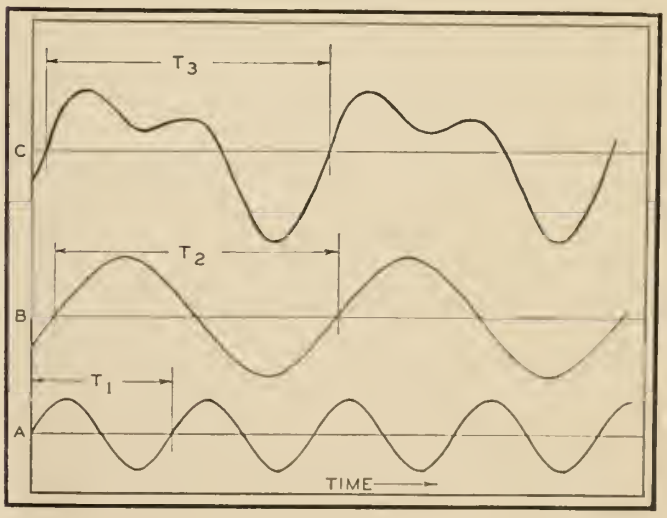
and so on. If we study Figure 3 we will observe that from 1790 to 1860, the population of the United States doubled every 23 years. This is the same type of increase that characterizes a sum of money at compound interest, where the interest is added to the principal continuously as fast as it accrues. Computation shows that from 1790 to 1860 the instantaneous rate of growth was almost exactly 3 percent per annum, compounded continuously.

Now suppose that this were all we knew about the population of the United States—that from 1790 to 1860 it had expanded geometrically or exponentially, at 3 percent per annum, or in such a manner as to double every 23 years. Could we then say anything about the past or the future of that population? Calculation shows that if this rate of increase continued for another 454 years after 1860, or until the year 2314 A. D. there would be one person to every 4 square feet of area in the United States, which would just barely be standing room, and in another 23 years this number would be doubled.

It is obviously physically impossible to support such a population density on any area, so we are forced to conclude that no population of any kind—plant or animal—can expand geometrically for more than a temporary period of time.

Further study of Figure 3 bears this out. The dotted line curve is the rate of increase of the population in percent per annum for each ten year period. After the Civil War this rate, it will be noted, descends rather sharply toward zero, indicating that although the population is still increasing its *rate* of growth is decreasing.

FIGURE 2



Another way of getting at the same thing is by means of the birth-rate and death-rate curves of Figure 4 as derived from the *Statistical Abstract of the United States*. The solid line curve in this figure represents the number of births per year for each thousand of the population for each year since 1915. The middle curve is the number of deaths per thousand, and the bottom curve is the excess of births over deaths.

It will be noted that the birth-rate has been falling since 1915, and that the excess of the birth-rate over the death-rate has been declining since 1921, being only 6 per thousand in 1934. The present expectancy of life is about 60 years, so that if the birth-rate and the death-rate were equal and the population stationary, 1/60th of each thousand would be born and 1/60th would die each year, giving a stationary birth-rate and death-rate of 16.7 per thousand. The birth-rate has already reached this critical figure and shows every indication of going below it. If it does, the death-rate must rise as the present older generation dies off. Almost certainly the birth-rate and death-rate curves will meet or cross not later than 1950. On this assumption we can estimate the difference between the two from now until then. This enables us to compute the increase of the population for each year between now and 1950. This has been done and the results are plotted in Figure 3 as the dashed extension of the population curve. This indicates a peak population of 134 million persons at about 1950.

It does not seem likely that this figure could be greatly upset by any procedure less drastic than an intensive subsidized program of cannon-fodder production.

If we follow the population curve in the other direction we can see that it is also impossible for it to have expanded at 3 percent per annum for more than a temporary period in the past. In this case let us consider the population of the whole world. The present world population is estimated to be about 2 billion people. The population of 1800 was approximately a third of this amount, or about 700 million. From geological and archeological data it is estimated that the human species has existed as such for about a million years.

While we do not know how many people existed a million years ago, there could not have been fewer than 2 and probably were many more. Neither do we know just how the population increased, but it probably had some rises and falls, reaching about 700 million by the year 1800. Let us suppose, however, that it grew at a uniform geometric rate from an initial population of 2 and reached the figure of 700 million, one million years later. How long would it require to double the population at this rate?

This we can solve if we let P_0 be the initial population, and P that at any later time, t. Then

$$P = P_0 e^{at} \qquad (1)$$

where e is 2.7183, the base of natural logarithms, a is the rate of increase per year, and t the number of years.

We first solve equation (1) for a, the rate of increase. Taking logarithms of both sides

$$\log_{10} P = \log_{10} P_0 + at \ \log_{10} e$$

and

$$a = \frac{\log_{10} P - \log_{10} P_0}{t \log_{10} e} = \frac{\log_{10} 3.5 \times 10^8}{10^6 \times 0.4343} = 1.98 \times 10^{-5}$$

Having thus determined a, we can solve for the time required for the population to increase 2-fold. This becomes

$$\frac{P}{P_0} = 2 = e^{at} \qquad (2)$$

$$\log_{10} 2 = at \log_{10} e$$

$$t = \frac{\log_{10} 2}{a \log_{10} e} = \frac{.30103}{1.98 \times 10^{-5} \times 0.4343} = 35{,}000 \text{ years}$$

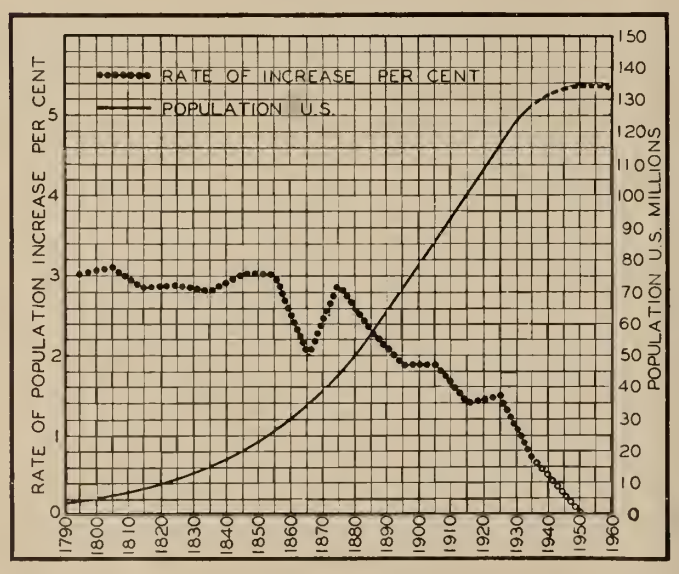
Thus we see that this would require a growth rate such that the population would double in size only once in 35,000 years, which is about 5 times as long as the time since the pyramids were built.

This does not mean that the population actually grew at this rate, which is a sort of mean rate for the period. The population doubtless expanded much faster part of the time (as in the years immediately preceding 1800); if so it also must have expanded more slowly much of the remaining time.

All that has been said of human populations is true also of all other kinds of organic populations. One of the great fallacies of the 19th century was the enunciation of the so-called 'Law of Malthus' by the economist Malthus, first formulated in 1798 and revised a number of times after 1800. Malthus stated that human populations tend to increase in geometric ratio with time, but that the food supply increases only arithmetically. The real error consisted in failing to recognize that *all* biologic species, including those used for human food, tend to increase geometrically with time, but that the usual state of any biologic population, excepting those that fluctuate with the seasons, is stationary. In other words, if we had a record of the various populations of a biologic complex for a period of some thousands of years, any rapid change, either upward or downward, of any population would be a definitely anomalous phenomenon.

Malthus apparently was unaware that he was witness-

FIGURE 3



ing one of the most abnormal population changes in the whole history of the earth, and he made the mistake of assuming that what he saw was the normal state of affairs.

This might be of no importance were it not for the fact that even today, most of our contemporary thinking is based unknowingly upon the same hidden errors of Malthus. Not only has the past century been a period of unprecedented population growth, but it has been even more spectacular in its industrial expansion.

Ever since before the dawn of written history the human species has been accumulating technical knowledge of how to convert a larger and larger share of available energy to its own uses. The use of fire, the domestication of animals, the development of tools, the development of agriculture, the mining of metals, the utilization of wind and water power, and the tapping of the vast stores of the fossil fuels, coal and oil, have been among the leading successive steps in this long line of cumulative achievement. Step by step, each of these advances has disturbed the existing biological equilibrium in favor of an increase of the human population. This procession has reached its most spectacular stage of development in the period since the Civil War. During this period, not only have populations increased, but so have a large number of other things—railroads, factories, automobiles, aeroplanes, radios, and the production of such minerals as iron, copper, tin, lead, zinc, aluminum, magnesium, phosphates, potash, coal, and oil.

So montonously have these things increased during our life times that many of us have assumed naively, like Malthus, that such increase is the 'normal' state of affairs, little realizing that some of the most abnormal events in all geological history were being witnessed.

From the Civil War to the World War, for example, the production of coal doubled every 12 years, increasing at a rate of 5.9 percent per annum. From 1880 to 1929 the production of oil and gas increased 8.5 percent per annum, doubling every 8 years. From the Civil War to the World War the production of all energy—coal, oil, gas, and water power—increased at the rate of 6.1 percent per annum, doubling every 11.5 years; the production of pig iron increased at a rate of 7.4 percent per annum, doubling every 9.5 years.

Just as we did in the case of population, let us now see to what extent this state of affairs can be maintained. In the case of coal, the production of which doubled every 12 years, we can calculate what the annual production would be at any given time in the future and also the cumulative production, assuming this rate of growth to be maintained. It is estimated that there are between 3×10^{12} and 4×10^{12} tons of coal still unmined in the United States. Taking a conservative figure of 3.4×10^{12} tons, and allowing production to continue to increase from the year 1900 at 5.9 percent per year, it would require only 111 years, or to the year 2011 A.D., to exhaust the coal reserves of the United States. On the other hand, at the present rate of production of about 600 million tons per year, the supply would last some 4,000 to 6,000 years.

The same sort of relation is true of oil, the production of which increased at the rate of 8.5 percent per annum and reached over a billion barrels per year in 1929. Since that time it has leveled off, averaging approximately a billion barrels per year. In this instance the proven reserves, that is the oil already discovered, amounts only to about 11 or 12 billions of barrels, or a 10 or 12 year supply at the present rate of production. The only way in which this margin can be maintained is by discovery of new oil at a rate equal to the production. While we do not know exactly how much oil remains undiscovered, we do know that it is a limited supply and that for every barrel of oil taken out of the ground there remains one less barrel to be produced, and that every new pool discovered diminishes the undiscovered pools by one. Furthermore, the easy discoveries have already been made and only the difficult ones remain. While it is improbable that all the oil will ever be taken out of the ground or even discovered, it is certain that the production of oil will reach one or more peaks and finally decline, reaching ultimately the limit of zero production. The time of the beginning of this decline in the United States is somewhat uncertain, yet it seems doubtful that it can be postponed any later than 1950 and possibly not that long.

Coal and oil are primarily energy resources and the matter contained is of only secondary importance. In contrast with energy resources, most mineral resources are useful for their material content. They differ also in that the matter contained cannot be destroyed nor removed from the surface of the earth. Spectroscopic analysis shows that almost any specimen of ordinary rock contains traces of most of the known chemical elements. The average iron content of rocks of all kinds is about 5 percent. In the development of material resources, advantage is taken of the fact that there exist localities where by one or another geological process certain mineral substances have become concentrated in abnormally large amounts.

Taking iron as an example, rich concentrations of the mineral hematite (Fe_2O_3) occur in the Lake Superior, and Birmingham, Alabama iron mining districts. In the Lake Superior district the rock mined contains 50 percent by weight of iron; the iron content of the Alabama ores is 30 percent. The reason for the difference is that the non-ferrous content, or gangue, in the Lake Superior district is silica, while in Alabama it is limestone which is useful in smelting.

The distribution of iron concentration in the total mass of minable rock is shown diagrammatically in Figure 5. The total area of the rectangle represents the total min-

FIGURE 4

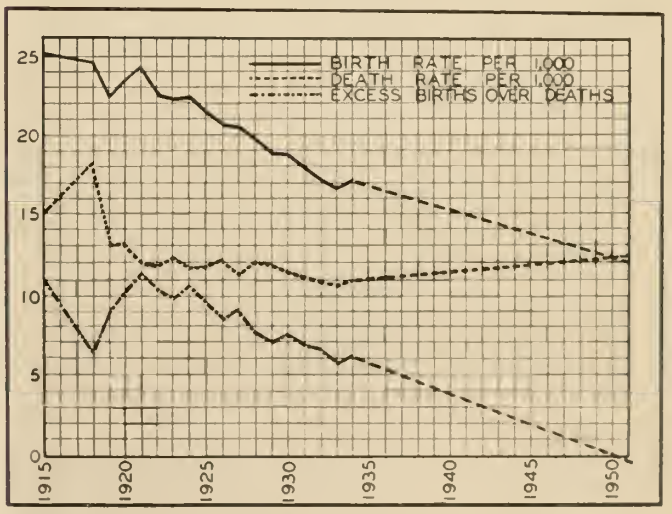
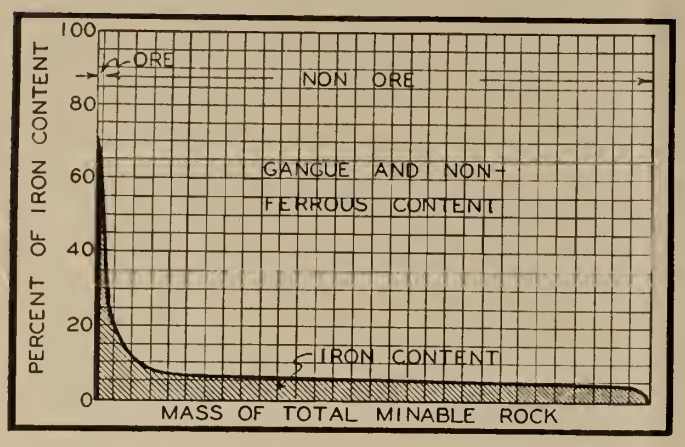


FIGURE 5



able rock. The vertical columns from left to right represent rock amounts arranged in order of decreasing iron content from the highest of about 70 percent at the extreme left to approximately zero at the right. The narrow black strip at the left, which is shown greatly exaggerated, represents the high concentrations of iron that are currently regarded as minable ore. When such areas are exhausted, which promises to be only a matter of decades, the lower concentration deposits will have to be worked at a correspondingly higher energy cost of extraction.

In the use of any material resource a certain fraction is always inevitably lost. In the case of iron this is largely through corrosion by oxidation, or through needless scattering as in the case of 'tin' cans which go on the garbage dump. A large fraction of lead and zinc are used as paint pigments. All such losses result in a low concentration dissemination of the resource. This means that our industrial operations tend to level off the shaded areas shown in Figure 5. We mine only the highest peaks of the shaded area and ultimately we scatter the material so obtained over the region of low concentration. This causes the surface of the shaded area to tend, like water, to a level characterized by the most probable possible state of uniform concentration.

While Figure 5 is drawn specifically for iron, it may be taken as representative of all material resources, which through industrial use are transformed from a more available and less probable configuration to a more probable and practically non-available configuration.

This is indicated in a somewhat different manner in

FIGURE 6

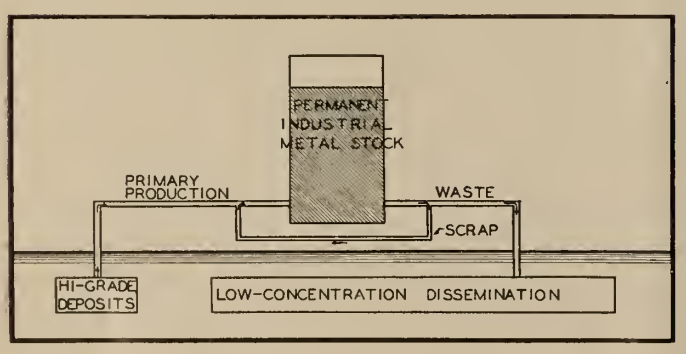


Figure 6 where the essential elements of the flow-line of any metal are depicted. The stock of metal in industrial usage may be thought of as stored in a storage tank of variable capacity. Metals flow from high-grade deposits by the process of primary production into the store-tank of industrial usage. They leave this tank by wastage or scrap. The scrap may be retrieved and returned along with primary metals to further industrial usage. The waste goes to low-concentration dissemination. The annual gain of the stock of any metal is the difference between the annual production and the annual waste.

The different types of growth phenomena that we have been considering are illustrated in Figure 7. A large number of quantities, we have seen, have increased geometrically or exponentially with time, over a number of decades. They have increased according to the law:

$$P = P_0 e^{at}$$

where P_0 is the initial value of the quantity at time t_0, P the magnitude of the quantity t years later, a the rate of increase per annum, and e the base of natural logarithms. We have already seen in the cases of population growth and coal production that such a rate of growth is impossible for more than a temporary period, otherwise the population and the coal produced soon would exceed all physically possible limits. This qualification is general. No physical quantity can increase exponentially for more than a limited period of time on an earth that is finite and limited in size. All such growth curves must consequently break away from the exponential curve and level off.

In Figure 7, curve A is an exponential curve expanding at a rate of 6.4 percent per annum, or doubling every 11 years, which is intermediate between the rate of growth of the consumption of energy and that of the production of pig-iron in the United States from the Civil War till the World War. Physical production, however, has not been able to keep up the dizzy pace set by curve A, and it has veered off along the solid line curve.

In the future, all such quantities must ultimately follow along curves of the types given by B, C, or D. Fortunately we do not have to wait in order to know which of these three classes any given quantity will have to follow. B represents all quantities which level off approaching asymptotically to a maximum; C represents quantities which level off to some arbitrary level, in general neither a maximum nor zero; D represents quantities which pass through one or more maxima and finally approach zero as a limit.

The development of installed water power in any given area follows a curve of the type B. We may develop more and more of the potential water power but we can never exceed the amount that there is.

All biologic populations and biologic products, such as grain, cotton, lumber, meats, leather, wool, etc., follow curves of the type C. A biologic population rarely becomes zero (extinct); neither can it increase beyond certain limits. The normal state of populations, other than those that fluctuate with the seasons, is stationary. Periods of rapid change are, as we have seen, definitely exceptional.

Finally, to type D belongs the production of all mineral resources. The fossil fuels, coal and oil, are strictly of this type. The curve D represents the amount (tons of

coal, barrels of oil, etc.) produced per year. The area under the curve up to any given time represents the integral or cumulative production from the beginning to that date. Since the amount of coal and oil is finite, and the rate of creation of new coal and oil sensibly zero, it follows that no matter what the exact shape of the curve D may be, it must begin at zero and end at zero, and the total area under it may approach but cannot exceed the quantity of the resource originally in existence.

The material resources are also of this sort with this exception: that it is impossible ever to exhaust a material resource, so that if production be kept up long enough, the high-grade deposits will all be obliterated and only the lean ones remain. When this has gone far enough, production may cease, or else it is possible, if energy supplies are available, to continue working the low-grade deposits indefinitely.

So far we have spoken only of quantities that for the last 100 years have been increasing somewhat spectacularly with time. There are other types of quantities which have been decreasing throughout that time, due to progressive changes in the technological processes of production. Among such declining quantities are the amount of coal required to produce a kilowatt-hour of mechanical or electrical energy, the amount of land required to yield a unit of agricultural produce per year, the amount of coal per 1000 gross ton-miles of railroad transportation, and the number of man-hours of human labor required per unit of output of any industrial product.

In general we may say that every time we design new equipment to perform a function formerly done by equipment and processes of an older design, the new equipment has these essential properties: its parts move with a higher frequency, and it requires fewer man-hours of attention per unit of output than the equipment displaced. These are, in fact, the reasons for installing the new equipment.

It is a perfectly general rule, also, that every time equipment is made to run faster, its mass and the floor space it occupies per unit rate of output decrease. For example, the power plants are installing 3600 r. p. m. turbo-generators instead of the usual ones turning at 1800 r. p. m. because the faster ones occupy less space for the same kilowatt rating. The streamlined trains weigh less than half as much per passenger-mile per hour as the old fashioned pullmans, and require less than half as many man-hours per passenger-mile.

All of these curves which decline with time are, as we have seen, rate curves of one kind or another, and the decline occurs in consequence of technological improvement. Associated with each of these decline curves, therefore, is some growth curve of the type we have been discussing. Thus, if Q is some quantity that is being produced and P its rate of production, then

$$P = \frac{dQ}{dt} \qquad (3)$$

where dQ is the amount of the quantity produced in the time dt.

Now if A is some other quantity such as man-hours or pounds of coal that depends upon Q, then $\frac{dA}{dQ}$ is the amount of A required per unit of Q produced. Finally, the amount of A per unit of time, $\frac{dA}{dt}$ is given by

$$\frac{dA}{dt} = \frac{dq}{dt} \cdot \frac{dA}{dq} = P \cdot \frac{dA}{dq} \qquad (4)$$

This is illustrated graphically in Figure 8 where curve A represents the rate of production P of some quantity; curve B represents $\frac{dA}{dQ}$, the amount of some other quantity required to produce a single unit of the quantity represented in curve A; curve C is the product obtained by multiplying the quantities of curves A and B together, year by year, giving the variations with time of the quantity $\frac{dA}{dt}$ of equation (4).

In an early stage when the rate-of-production curve A is near zero, the product curve C is also near zero. As the production increases, the product also increases but not so rapidly, since one member of the product curve C is declining. Finally, as the ordinates of the curve B get smaller and the curve A levels off, the product reaches a maximum and declines.

FIGURE 7

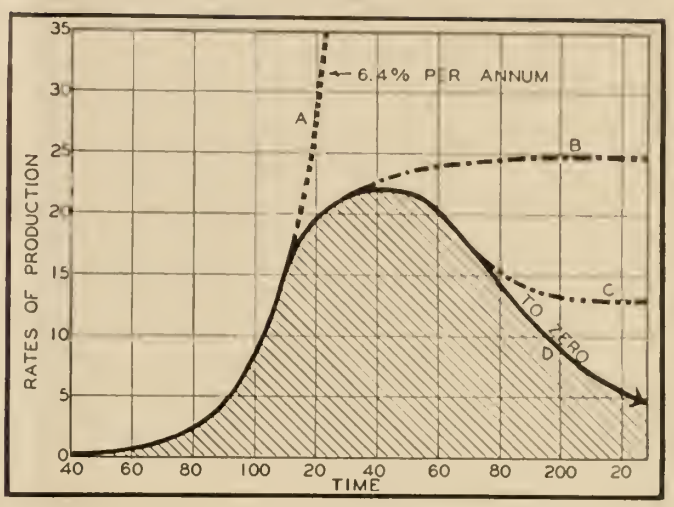
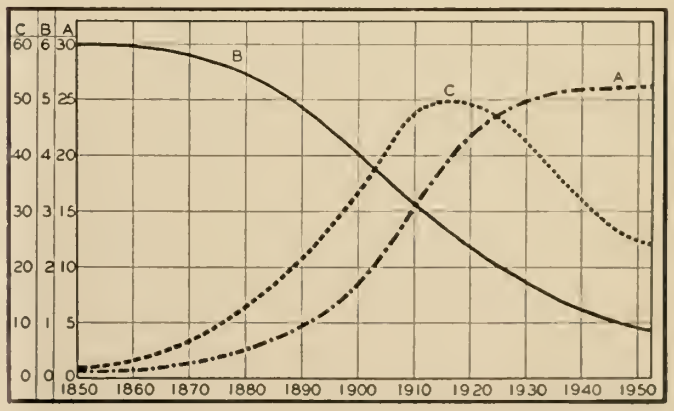


FIGURE 8



These relations have been stated abstractly in this manner so as to make them applicable to a number of things that vary in this way. If the curve *A* represents production and curve *B* the man-hours required per unit produced, then curve *C* represents the total man-hours per year in that industry. Curve *A* may represent the annual production of kilowatt-hours of electrical energy, and curve *B* the pounds of coal per kilowatt-hour. Then curve *C* would be the total coal consumed in the production of electric power. Curve *A* might be the number of bales of cotton produced in each year and curve *B* the average number of acres required to produce one bale. The curve *C* would then represent the total number of acres each year required for the entire crop. Again curve *A* may represent the annual production of a manufacturing industry and curve *B* the area of floor space or mass of equipment required each year for that rate of production.

There are many other examples of this sort, but in all cases the production represented by curve *A* must, for reasons already discussed, level off. The quantity of coal, of man-hours, of land area, of floor space, or of metal in machinery, as the case may be, per unit produced or per unit rate of production, in consequence of technological improvement must decline. Consequently the total man-hours per year, coal per year, land area, floor space, and metal tied up in machinery will in each instance reach a peak and thereafter decline, as indicated by curve *C*.

If we now sum up what we have been over, some results of profound significance should become apparent. The history of the United States is the record of the variation with time of a large number of separate biological and industrial quantities. Many of these quantities have increased exponentially until about the World War, and have since then levelled off. No physical quantity can continue to expand exponentially with time for more than a temporary period. In the United States and the North American Continent the period of exponential expansion with present energy resources has already passed.

The last hundred years have been characterized by the most spectacular technological improvements in history. These have led to a continuous decline of such quantities as man-hours per unit produced, pounds of coal per kilowatt-hour, acres per bale of cotton per year, pounds of metal per unit rate of industrial output, area of factory and office floor space per unit rate of manufacture and accounting. Furthermore, there is no indication or likelihood of there being a cessation of these technological trends in the calculable future.

The combination of these two factors, the leveling off of population and production curves, and the decline of the factors enumerated, leads necessarily to a maximum and then a decline of total man-hours of employment per year, land in cultivation, floor space for both factory and office, and the metals in active industrial use. Furthermore, most of these maxima have already occurred and the decline in the factors enumerated is already under way and has been in some instances (employment for example) for nearly 20 years.

This means decreasing labor for human beings, a contraction of floor space and cultivated farm land, a saving in the rate of exhaustion of non-replaceable resources such as coal and oil, and a curtailment of primary production of the common metals such as iron and copper since the scrap of old equipment becomes more nearly ample to build the new without a drain on ore reserves by primary production.

Notwithstanding some millions of dollars worth of propaganda to the contrary indulged in by the leaders of business in the form of paid advertising and by the presidents of some of our leading technological institutions of learning, these trends are in no wise to be reversed by any scientific or technological procedure, or by any hypothetical 'new industry'. The growth curves we have discussed represent an integration of essentially all industries old and new—the wagon industry, the automobile industry, and the aeroplane industry.

The very period during which technological progress has been the fastest—that since the World War—is the period of the lowest rate of industrial expansion in the last 100 years of American history.

Returning to our friends, the economists, and their 'business cycles', it may be noted that at no time in American history has the ensemble of events that go to make up what is commonly regarded as 'business' ever repeated itself cyclically or otherwise. To repeat the events of 1920 it would be necessary to put the population back to its 1920 state; to go back to the 1920 models of automobiles, highways, and other equipment; and to restore to the ground all the coal, oil, and metals that have been removed since that date.

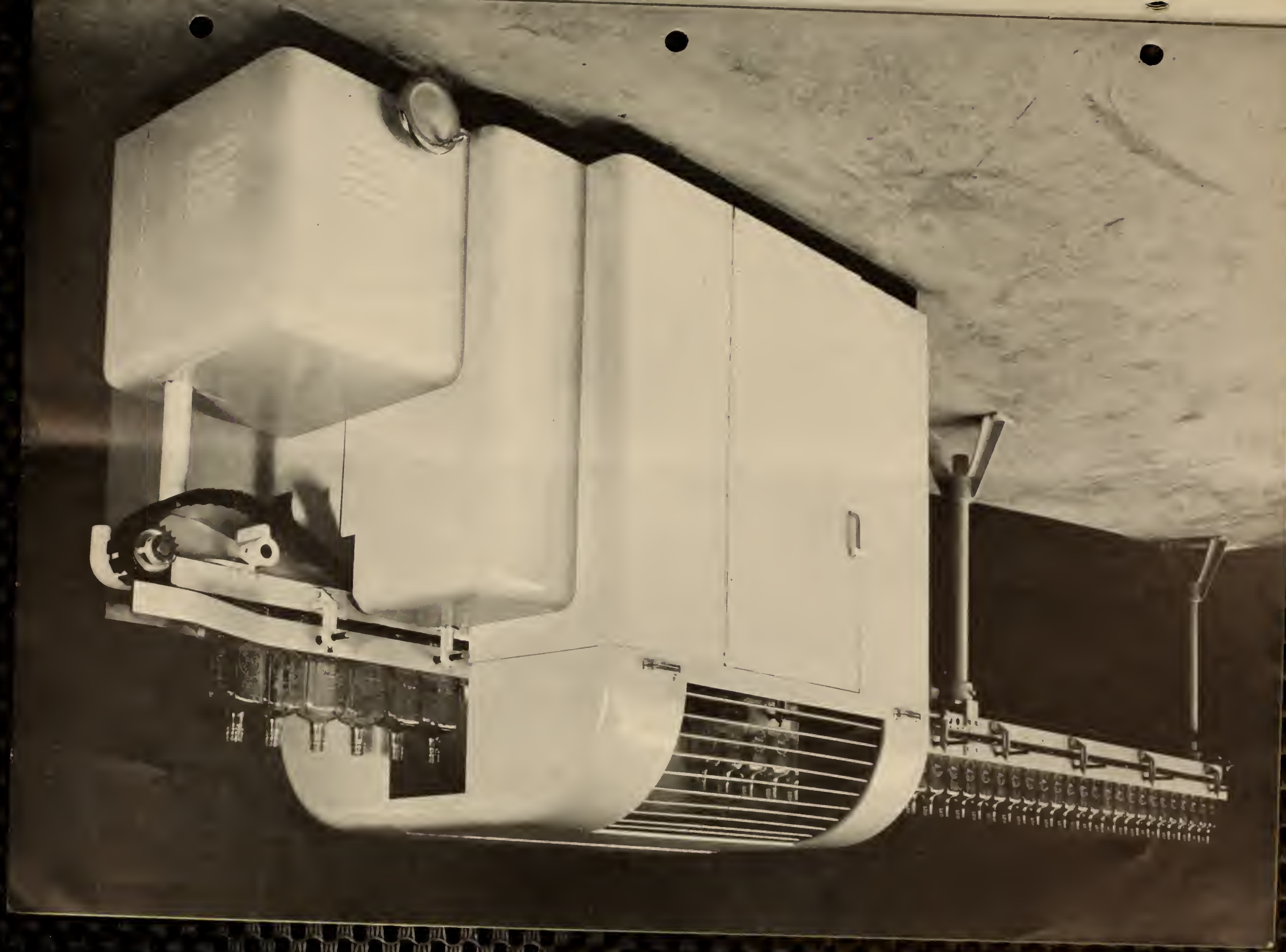
Since any of these things are manifestly impossible, then let us recognize that we are dealing with phenomena that do not and cannot repeat themselves, and that the events of 1873, of 1893, and of 1907 were essentially and fundamentally different from the events of 1938. And the events of 1940 will in no wise be determined upon the basis of what happened in 1875.

The people of the North American Continent cannot travel the road travelled by the peoples of Europe, nor can they travel the road which they have covered in the past. Neither the astrologers, the economists, the politicians, the liberals, the reformers, nor the radicals can conjure out of their crystal balls the blue print of a New America. Only in the trends of modern technology and in the biologic processes taking place on this Continent can the most probable future be read.

Technocracy is the science of social technology; as such, it has determined the next most probable state of human affairs on the North American Continent.

STREAMLINED 'CHIEF BOTTLE WASHER!'

This automatic, high-speed bottle cleaning machine cleans six bottles at a time by a blast of clean, dry, compressed air. The bottles are then swung on to a conveyor, and passed quickly to the filling, capping and labeling machines in a straight-line continuous, automatic process. In this machine, speed and automatic performance are combined with pleasing appearance. (A Pneumatic Scale Corporation Photo)



Perplexity?

By Harold Fezer (CHQ)

YOUR author has been handed a folder of clippings collected at random over a period of a few weeks from a few of the newspapers of one city, with the suggestion that comments be made and compiled for an article on the profound utterances of our national 'leaders' on things national. While a book could be filled with these splutterings of great minds, the Technocrat's unbounded sense of humor shall be tamed, because of the possible tragedy involved in this perplexity of our supposed leadership. Of more importance than these splutterings is an indication of a few of the Continental trends, which however small and insignificant as yet, are promising to shape the social pattern of this Continent on its road toward a most glorious tomorrow.

We are wont to excite ourselves over the uncertainty and seething unrest that is the keynote in Europe and Asia; but let us look at the contradictory uncertainty that is evident in the following ejaculations of the men of affairs of our own land. Without trouble, the reader can extend the following list from his own reading of the public press. One finds it difficult to conceive of the gullibility that must be an attribute of a people which accepts the daily affronts to the supposed intelligence of homo sapiens, implied in these prophetic utterances.

On February 3, Frederick H. Prince, chairman of the board of Armour and Company, saw the recession's end in three months: 'I am not too pessimistic about business. In my opinion, this present recession was caused chiefly by the fear of labor trouble in the country, and fearing that this would get worse, some people loaded up with large stocks and, of course, they had so much on hand many of the places closed. These stocks will move, and when they do business will start itself again .... If the national government would stop its reforms and leave business to the business people and the public, everything would be all right.' (Technocracy reminds Mr. Prince of the time the banks closed in the spring of 1933.)

Then comes Representative Snell (R., N. Y.), House minority leader who declared on January 31 that responsibility for the new recession rests with the Roosevelt administration and states that 'positive legislation is required to break the existing New Deal shackles upon private enterprise.' (It is comforting to know that democracy may yet rise to meet the occasion with *positive* legislation provided we 'free citizens' of the greatest country on earth will have a lucid interval at the appropriate moment and vote for the proper legislators with the *positive* legislation as their goal.)

Not to be left out of the parade, our old friend Colonel Leonard P. Ayres of the Cleveland Trust Company marches along and reviews on January 12 for the Senate Committee on Unemployment, the thirteen serious depressions which this nation has witnessed in a century. To our immeasurable relief he assures us that all of them were indicated by the same warning signals, and that if only chairman Marriner S. Eccles of the Reserve Board had heeded the warning, all would have been well; the present recession would never have come about. However, the real step—reduction of reserve requirements—was not taken and all the other efforts proved unavailing after deflation had gained a firm foothold. (We are badly disappointed in Colonel Leonard P. Ayres, the very great economist.)

On February 2, Bertram J. Cahn, president of B. Kuppenheimer and Company, Chicago clothing manufacturers, declared that 'this temporary recession can develop into a real depression unless labor accepts equal management for the welfare of our economy.' He further adds that he 'does not believe that a high hourly wage rate has a blessed thing to do with the prosperity of the individual worker, or, ultimately, with the prosperity of the country.' (Belief is a marvellous salve for presidents, but is of no functional importance.)

The fifth of our selected instances of typical moronity is the statement of Dr. Gerald Wendt, director of the American Institute, warning an audience at Town Hall, New York, that the objective of science must shift from materialism toward the spiritual! (A marvellous extension of science! Technocracy states that to produce and distribute an abundance of goods and services in a coordinated high energy civilization will certainly be a sufficiently large job for science.)

But 'Ah, Wilderness!' On January 28, five railway chiefs surveyed the business front and concurred in the opinion that the country was pulling out of the recession. Here is keen perception! And E. E. Norris, president of the Southern Railroad commented that 'very soon things will be humming so that the American people will hardly know they have had a depression or a recession. Business is down as far as it will go and is on the upswing.' (Apparently President Norris doesn't know 'how far is *up*.')

We must, of course, include in 'the parade of the lame and the halt, the dumb and the blind,' the great General Hugh S. Johnson. On January 18, he expressed his belief that the key of recovery is simple. It is merely a matter of the government making it clear to the citizen that he is permitted to invest his money, to make a reasonable profit and keep a reasonable part of it; but that abuses will not be tolerated: and since that is not made clear today, the capitalist system is not functioning. (The simplicity of this solution is appealing, but ....)

On January 14, a Cadillac official declared that in his opinion the recession is largely mental. (Perhaps he is related to Coué?)

Now let the women come to the fore, as they did on January 13, when President Roosevelt received and acclaimed a proffer of the General Federation of Women's Clubs to originate a mass movement for counteracting the recession. Their plan is also simple. It contemplates

the spending of a little *more* by each family in lieu of the present hoarding. (Never be it said that the organizations of the weaker sex do not rally in the hour of national need.)

Another distinguished apologist is Dr. Robert A. Millikan, who again and again deplores the theory that science is creating unemployment, and emphatically states that all economists agree that the only way of raising the standard of living is by increasing the total amount of goods and services produced. (Here, in the midst of our complexity is a profound agreement between science and economics!)

By now the reader must notice a sinking feeling in the region of his stomach, and although we have only begun to wade into the depths of our folder, for the benefit of both of us, we will cut this review of reviews before we become thoroughly nauseated. Yet, there are still a few tid-bits which resemble in a way that last piece of cake which should not be eaten.

Walter Lipmann, liberal turning conservative, feels that we are moving in a region where nobody knows exactly what he is talking about, in a region not yet brought securely within the frontiers of human knowledge. (*A la* Charlie McCarthy!)

Then a long, long time ago, on December 7, 1937, President Roosevelt at his press conference made the statement: 'that there is a business recession is an assumption.' (That proverbial brick on a man's head must have been an assumption too.)

Henry Ford, too, amongst a host of others, made his private explanation of the recession about one month earlier, when he said that the present slump is merely a pause before the climb. (Delicious! With him it is a case of money not fulfilling the proper function, that prevents this nation from being really wealthy.)

And then there are those who dabble in the sun spot theory, the cyclic theory, and the what-have-you theory. That is enough. With the advent of modern technology, the criteria of our public figures in the various fields are but shifting buoys in a strong sea.

In outlining the trends that can be traced on this Continent it is all-important to understand that no analogy can be established with the march of events in any other area of the globe. Temporarily, a world war with our participation would influence somewhat our progress on the highway toward the New America, but such a war would not alter our destination, nor affect materially the time of arrival.

This Continent's destiny is determined by overflowing seas of abundance—an abundance resultant of munificent natural resources and favorable climates from which has arisen a technology far outstripping that of other countries. We are the first people in man's history to depart en masse from the maxim that you shall earn your bread by the sweat of your brow. We are abandoning more rapidly every day the obsolescent method of producing physical wealth by hand methods, and we may reasonably expect that this fundamental departure will produce consequences which our perplexed 'leaders' can never interpret, since they will not entertain and bring to a logical conclusion the consequences arising from a widespread faltering of all values by the advent of abundance.

The formation of new concepts involving our entire social pattern can be traced by the Technocrat more closely than by any other individual because he will observe the phenomenon without the fetters of age-old tradition. If he will but continue to observe coolly, his predictions of the immediate future will be close approximations, and he will be the first to hail even closer approximations from wherever they may originate.

In looking about us we can discover certain developments as yet not pounced upon by our moulders of opinion, but which are developments of the most far-reaching importance. These developments will assume immense proportions and generate irresistible forces which will carry us along on our road to the New America.

British imperialism has been a strong force in shaping the trend of thought in Canada. However, in western Canada one finds a new trend which concerns itself with the concept of the North American Continent as one organic social unit. This thought trend is stating that Canada, with the remaining political entities on this Continent will very shortly form a New America. This projection in no way arises from any enmity toward the British Empire, but is solely the resultant of social developments on this Continent. There is being born what may be termed a new 'patriotism of a Continent' that transcends the old ideology of nationalism and imperialism. The white man has come to this Continent from many places, but strangely enough, with the climate, food, and social environment of this Continent, he has within a few generations conformed to a new pattern, bearing no resemblance to any of the patterns of his ancestors. And now, at the threshold of the formation of a New America, with the complete disappearance of all political boundary lines on this Continent, it seems strange that up until now the proximity of an event of such gigantic proportions has generated concern and interest among relatively few individuals; especially when one considers that this event will not only transform the face of this Continent, but will reverberate throughout the world in its manifold effects.

In tracing new thought trends we must consider the question of war. We can observe the fundamental denial, by a swiftly growing number of people, of any need to engage in a war off this Continent. Often the fear is expressed that before long, Europe and Asia will become embroiled in a major war in one form or another. The North American does not want to become a party in warfare abroad. He states that he has no enemies off this Continent and that if he gets his own home in order there will be no power, or combination of powers, that can invade his domain.

Directing his attention toward the analysis at home, the North American awakens more and more to the fact that there is something fundamentally out of gear in the present social mechanism. On one hand he is presented ad infinitum with a description of the magnificent array of new wonders of modern technology—equipment that can do 'almost anything' and can produce apparently any desired quantity of use forms. And then again he is expected to accept utterly stupid sooth-sayings such as have been recounted earlier in this article. His governments are building gigantic sources of power that can perform untiringly the work of millions of men, and yet he is expected to go out and earn his bread by the sweat of his brow. He may not be able to envisage fully the

social implications of the conversion of extraneous energy, but he is beginning to doubt. Already one can find many farmers who no longer revere the time-honored institution of individual small-scale farming when brought face to face with the realization that agrobiological large-scale, mechanized power-farming—or to go further, hydroponics—will replace his toil and hardship, and provide him with leisure and the advantages of modern urban community life. A part of organized labor is beginning to see that no longer must it fight to put itself in overalls, in order to obtain a hamburger sandwich. It, and all citizens, must organize on a new basis which Howard Scott has tersely characterized as 'putting the machines in overalls.'

A greater and greater percentage of the people is groping for a positive direction. Symptoms of this groping were the various social movements in recent years that rose to considerable prominence for short periods of time. Since the 'leadership' of these organizations had no direction itself the sheer number of followers merely hastened the debacle of the originators and leaders.

It is obvious that the failures of these movements have not eliminated the causes that produced them. The need for leadership in step with the parallelism of events is more urgently needed than ever. We have advanced so much further toward possible chaos; and the North American does want to be organized. He is virtually begging to be shown the organization that will lead him to the New America. Of course, there has been just one thing wrong with Technocracy—so said the average North American. Technocracy did not cater to his conditioning to glorified salesmanship. Technocracy didn't attempt to *sell* him anything. Technocracy flatly refused to compromise. It worked on the basis of 'take it or leave it.' It had the nerve to use its own vehicle of expression! But meanwhile the march of events has caught up with the average North American.

Alone in the field, Technocracy is about to become a mass movement of North Americans. There will be no effective organized opposition. The North American will say, 'Let's go!' And he who will attempt to stem the tide of North Americans in their hurry toward the goal of a New America will resemble the feather in the path of a tornado. While the American will not die for the dead causes of yesterday—as the European and Asiatic will do—he will wade through hell and high water for the attainment of a greater tomorrow for his children.

Fascism and communism are alike alien to the North American. Both have failed to interest him in their 'successes' in Europe. In conformity with all good marxian theorists, their cause should have advanced startlingly during the depression and recession, and yet there is little to show for the efforts and moneys spent by a few fanatics. It is rather humorous to note as a further contribution to the prevailing perplexity, that the communists in the United States have gone more democratic than the democrats themselves. What they apparently have never learned is that there is one thing the North American will not stand for, and that is to be told that there is a country on this globe which is entitled to greater superlatives regarding achievement than his America.

But democracy is on its way out. For less than two centuries has it served this country. A rather short span of life as forms of social controls go. During its reign, this Continent has seen an unprecedented rise from an entirely agrarian economy to the most highly developed industrial mechanism in the world. We are not concerned here with either granting or denying the merits that are given to democracy in many quarters. We have arrived at this stage either in spite of, or due to democracy. As Technocrats we are aware of the requirements that must be met by the social control form that can be applied to a society depending upon the continuity of vast flow lines of energy, goods, and services for its very existence. Never yet has that condition been met, and therefore it is nothing short of idiotic to look toward the past for the pattern of such a social control form. The method of running any kind of handicraft shop tells us nothing of the methodology of constructing and operating a high-speed, direct-rolling steel mill. The order of magnitude changes a problem, even though the physical components may remain the same.

It will be shocking to many to realize that North-American-born audiences will agree freely with the speaker that the Constitution of the United States, and the British North America Act of Canada have become anachronisms that will shortly disappear with the march of events. There will be no civil war or revolution in an effort to spare them. The North Americans en masse will declare that Lizzie was fine in her day but that now she is ready to be placed in a museum.

Even as the control form of this Continent will have no counterpart in history, past or present, so also will the transition to this new social pattern have no analogy in human relations. We have arrived at a position where we must become our brothers' keepers, not for their sakes, but for our own. If we do not, we shall perish.

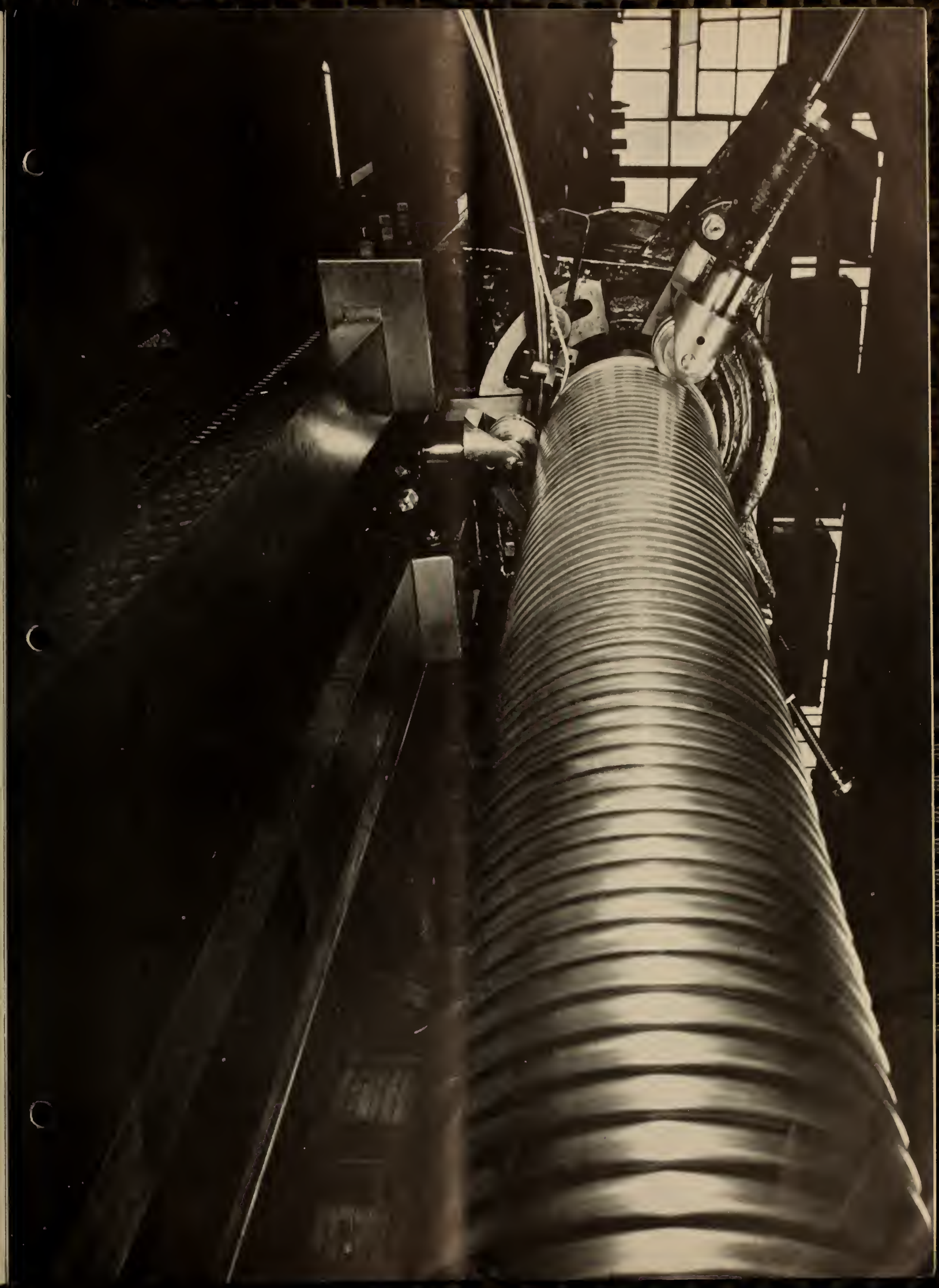
Is it not odd that we should have to become concerned about ourselves in order that we may obey this command? And stranger still, thousands of years ago the pattern of a far advanced society on this Continent also guaranteed security to every citizen, without slavery. A pattern of a Continent, submerged for many centuries, now is about to take hold again with the aid of modern technology and with the people that have come from other continents.

Perplexity? No, but the spontaneous generation of great forces that will produce the New America, the completion of a pattern started thousands of years ago.

Perplexity? No, but jubilant certainty for the morrow.

GIGANTIC FLEXIBLE METAL TUBE!

Spirally wound tubes of this size with the flexibility needed for certain purposes are made with ease by modern technology. Notice the equipment used in producing this tube. Notice how manual operation is eliminated. Flat metal strip is grooved and wound so that the flanges overlap. They are then formed by rollers into a joint, and as the tube is being formed a continuous packing of cotton, asbestos, rubber, or copper is wound into the tube wall. (*Product Engineering* Photo)



Technology Marches On

By L. M. Dickson (CHQ)

ACCOMPANIED by the installation of more and yet more technological equipment, the instability of Price System operation on the North American Continent becomes more apparent with each passing day. All fields of enterprise, from surgery, through dairying, to steel, improve their techniques. No division of man's activity on this Continent is immune to the persistent inventor, the research worker, the designer, the builder, the engineer and the technologist. One hundred million dollars will be poured into organized research alone in 1938, and out of it will come yet more streamlined processes and equipment for the people of a New America.

A banker once said that research was that which made securities insecure. He was only partly right. It undermines every social institution handed down to us from previous ages—the ages of human toil and scarcity.

When Technocracy became a by-word in 1932 it released its statements on the technology of the day:

> Man in his age-long struggle for leisure and the elimination of toil, has finally arrived at that position where, for the first time, this goal is not only possible but probable. With what is known of technology today in this country it is now necessary for the adult population, ages 25 to 45, to work but 660 hours per year per individual to produce a standard of living for the entire population ten times above the average income of 1929. The downward decline since the fall of 1929 has never once abated, and Technocracy has predicted in no uncertain terms the greatest social wreck of all time unless this decline is halted, or controlled. It is simply the example of an ox-cart driver attempting to pilot an airplane. There is little time to learn to use the controls to avert a crash.

That decline was stemmed by the mighty stimulation of over twenty-two billion dollars of government spending. It temporarily righted the equilibrium of the unbalanced Price System, but it could not stem the relentless advance of technology. It could not remove any of the basic causes of the imbalance.

Today, North America has over 1,600,000,000 horsepower of installed prime movers. The consumption of power is rising with but minor set-backs. The greatest drive for mechanization the world has ever seen has taken place in the past seven years. In the first four years of 'the depression,' productivity per man increased in some industries by as much as 40 percent. As a result of this process the relief rolls have failed to decline in accordance with the rising industrial output; the debt of the United States government has increased to an all time high of nearly 38 billion dollars; and business and production have oscillated more frequently than in any previous period of similar duration.

In every department of productive effort, and in the totality of the social mechanism the following statement of Technocracy has been born out:

> The progression of a modern industrial social mechanism is unidirectional and irreversible. Physically, this Continental area has no choice but to proceed with the further elimination of toil through the substitution of energy for man-hours. There can be no question of returning to premachine or pretechnological ways of life; a progression once started must continue. Retrogressive evolution does not exist.

Technocracy has stated its conclusions clearly in the past and continues to do so. Power technology is undermining our social institutions to such an extent that they must of necessity be scrapped entirely, and a new method of social control installed. Technological progress is so rapid that the crisis is imminent enough to warrant immediate and constant preparation. Only technological administration of all processes and functions can distribute the products of an age of abundance.

These conclusions of Technocracy are often evaded in a futile attempt to becloud the issue by the dissemination of various economic beliefs. This evasion takes many forms. It appears sometimes as a forthright denial of obvious facts; it appears sometimes in the fabrication of spurious contradictory statements, or in the form of philosophical escapes into the realm of past history; it appears as fantastic panaceas and efforts at stabilization. These evasions appear where one would least expect to find them. They appear frequently, amongst the better informed of our citizenry, those who have the facts available, those who have the public ear, those who have the training to interpret the facts correctly, in short the 'leaders' of the present regime in all its various walks. The rationality of this behavior is obvious upon further examination. Those who are responsible for this propaganda of misinformation are the chief beneficiaries of the present age of enforced scarcity, and history has shown that the chief beneficiaries of any regime are never prominent in exposing its weaknesses, even though the highest type of loyalty to their civilization would have been expressed in a general warning of those weaknesses.

Technocracy presents the facts and with them, the conclusions, but not so others, for instance the technical magazine world, which paradoxically leads in the dissemination of facts, and is one of the chief offenders in the evasion of fundamental issues.

Through the medium of the technical magazines we can take our readers into the world of power, steel, mechanical engineering, electricity, silk, rayon and textiles, petroleum, agricultural machinery, iron, coal, and a host of others.

Power

Since the turn of the century man has passed into a new epoch in his march of progress from savagery to civilization. The new epoch is the age of power, and in it the North American Continent leads the world.

In the United States alone, the output of public utili-

ties alone for 1937 was 124 billion kilowatt-hours, according to the magazine *Power*. In 1936 it was 113.6 billion. In 1937 Canada produced 23 billion kilowatt-hours, an all time high. The total installed capacity of electrical prime movers in United States increased during 1937 by 1,040,103 horsepower. Technology rolls on! According to the National Resources Committee: 'Since 1882 and until 1929 the output of electric central stations has practically doubled every 5.5 years.' Technocracy points out that this has been accompanied by a similar or greater rate of increase in industrial power plants, electric railway plants, mines and quarries, agricultural prime movers, automobiles, airplanes, locomotives and ships. Power, the precursor of social change has struck at the roots of our Price System institutions. But the power magazines fail to point this out. They wage, instead, a fight on behalf of their advertisers for the reduction of taxes and the domination of a nineteenth century laissez faire policy.

In addition to the capacity of its central stations, the North American Continent has approximately 90 million horsepower installed in its railroad locomotives; it has 75 million installed on its farms, mostly in gasoline engines; it has 965 million installed in its automobiles, and it has 22 million installed in its factories. During the past thirty-five years, man's productive capacity has increased fifty times, says the National Resources Committee, adding that a mechanical horsepower, costing from $20 to $50 per year, substitutes for ten to fifteen human beings. No wonder we have from twelve to fifteen million unemployed on this Continent. No wonder our business and production oscillate as in no other country!

Let us look at the record of 1937 for isolated but typical examples of improved efficiency in the conversion of energy.

Power Plant Engineering tells of a new record set in single cylinder 3,600 r.p.m. turbines. In Uncasville, Connecticut, a turbine installation weighs only 7.3 pounds per kilowatt of capacity and occupies but 10.9 square feet of floor space per 1,000 kilowatts. Previous to this the largest 3,600 r.p.m. unit of this type was rated at 10,000 kilowatts, weighed 8.5 pounds per kilowatt, and occupied 13.3 square feet per 1,000 kilowatts.

One effect of the increasing efficiency of steam plants not apparent to the casual observer, is the resultant decrease in coal consumption. As this process has extended to all steam plants, including railroads, the net saving in coal amounts to millions of tons annually, with consequent reduction in the man-hours employed in coal mining and transportation.

Engineers are insisting on higher heat-value coals. Fuel and ash handling methods have been improved by the use of rubber conveyors which resemble rubber pipes and carry the coal in any direction, horizontally, vertically and around corners. The use of hydrogen for cooling is increasing.

> And as yet nobody has been able to tell just yet where improvements in prime movers will stop. Pressures, temperatures, speeds, controls, cycles—'all have undergone changes for more economical operation, and the end is not yet in sight.'—*Power Plant Engineering.*

The magazine *Power* in its December, 1937 issue lists 300 detailed descriptions of improvements in the efficiency and output of power and mechanical equipment. We can barely scratch the surface here. An item concerning the electric eye catches our attention. This 'eye' rings a bell and flashes a red signal when inefficient combustion causes smoke. We note that modern electric generators run at as high as 98.7 percent efficiency. High voltage transformers are built to efficiencies of 99.46 percent.

And *more* motors! A report in *Machinery* describes a new plant of the Westinghouse Electric and Manufacturing Company at East Pittsburgh, which will turn out new motors of 1 to 50 horsepower on a mass production basis. The building is 1,450 feet long with two miles of conveyors. It will produce many different types of motors at the same time, yet uses the assembly line principle.

And so it goes on through the field of power. The fast growing diesel engine forges ahead at a greater installation rate than ever before. In *Diesel Power and Transportation* we read that the diesel's weight has been reduced from an original 150 pounds per horsepower to 21 pounds per horsepower. Diesel locomotives operate up to 1,000 miles per day at an average speed of 65 miles per hour. One diesel locomotive can make as many service miles in a year as two steam locomotives. Crankshafts have to be changed only every million miles. Diesel switchers work almost continuously. Man-hours fall. The weight of the engine alone is reduced 40 percent. The cost of fuel and oil per train mile is as low as 4.84 cents, compared with 28.08 cents for some steam locomotives. The tractive power of the diesels is supplied by rotating movement rather than by reciprocating, and this saves tracks. What does this do to the values of the Price System? We have moved into a new world where none of the economy of any times applies. Economics, the pathology of debt, is being rendered invalid by twentieth century technology.

Private business is digging its own grave with the valiant assistance of democratic government. For in *Reclamation Era,* a government publication, we read that the final bids for the completion of Grand Coulee Project have been placed. They call for the manufacture and placement of 6,000,000 yards of concrete (twice as much as in Boulder Dam, although over 4,000,000 yards have already been placed.) The structure will take 160,000,000 pounds of steel. The base, which is already built, is the biggest structure on earth. Besides this, ten million yards of material were removed from the westside coffer dam by means of conveyor belts, attaining a maximum of 51,839 yards in 21 hours. Excavation at the dam site exceeded 20,000,000 yards, and by the time the dam is completed the excavation at the gravel pit will exceed that at the dam site. Was this done by human labor? Were 15,844 cubic yards of concrete made and poured in a single day by hand labor? Technology scraps human labor. Technology scraps all of the institutions that grew up in a culture supported by human labor. To add to the sum total of America's power capacity, Grand Coulee will have an annual capacity of 8,320,000,000 kilowatt-hours of firm power. Technocracy is being assisted by the government of the United States. This year, work will be under way on the Shasta Dam in the Central Valley, California, a dam that will be second only to Grand Coulee, and that will generate 1,500,000,000 kilowatt-hours of electricity per annum.

Thus the New America is choosing its own ancestor. The America of tomorrow must be the offspring of its present technology. Technology and the control of the flow of energy will supply the design of governance in the New America.

Mining Technology

The keynote of modern mining is improved technology. In the past year hundreds of millions of dollars have been invested in the mechanization of mines. The biggest field of mining endeavor is coal. Coal provides us with 90 percent of our power, and it is in the mining of this mineral that technology will make its relatively greatest inroads. The ranks of the coal miners are destined to be decimated. Some 490,000 men find their principal occupation in the terrific drudgery of shoveling coal into mine cars. The mechanical loader will eliminate them from the mines. Eighty-seven percent of the coal is hand-shoveled today which provides a ripe and ready field for mechanization.

In addition to the mechanical loaders, other new machines are going in—belt conveyors, power cutters, steel cars, electric drills. Let us go down into a typical modern mine and see what has taken place.

The December issue of *Coal Age* tells us of the Bell and Zoller Mines in Illinois, where five mines produce 20,000 tons a day. Three of them are 100 percent mechanized. In their Ziegler No. 1 Mine, one loading machine made a record of 1,295 tons in seven hours. In their Centralia Mine No. 5, the output per man per seven hour shift averages between 10 and 11 tons—eleven loading machines are used; cutting is done with chain and bit cutting machines; shotholes are drilled with electric coal drills; the coal is blown out and machine loaded; and locomotives haul it away.

Zeigler No. 1 Mine uses 19 loading machines; No. 2 uses 16. The output of No. 1 Mine averages almost 15 tons per day per man. Where the old cars were made of wood and held only 3.3 tons each, the new ones, mechanically loaded, hold 4.5 tons each. One locomotive takes as many as 35 cars. The cleaning and screening plant has loaded 7,700 tons of mechanically screened and sized coal in 7 hours, using 94 electric motors. Down go man-hours.

From *Coal Age,* January, 1938, we find that the Moss Hill No. 2 Mine of the Hart Coal Corporation in western Kentucky averages around 20 tons per shift per man. This mine uses battery-powered, rubber tired tractors for hauling behind the loading machines.

Two hundred and forty-seven thousand men lost their jobs in the mines between 1923 and 1933. The rate of displacement has been greater since then. Mines which turn to mechanical loading reduce the man-power per ton to 35 percent of what it was.

The days of sweating slaves in the silver-lead mines of ancient Laurium are gone. The days of sweating miners in the mines of North America are numbered. Technology is about to free them from toil and place them temporarily on the relief rolls. The New America is on the horizon.

Industrial Technology

Of all the vast quantity of power used on the North American Continent, only a small percentage is used directly in industrial production—specifically, only about 40 million horsepower, or 4 percent of our energy conversion. If this proportion were raised by but another 2 percent, regardless of the energy used in other fields, the resultant productive capacity would be so great that the violent oscillations ensuing would guarantee the demise of the Price System.

On the other hand, if it should happen, which is entirely unlikely, that this increase does not take place, another factor will bring about the same result. That factor is the increase in thermal and mechanical efficiency, which will also raise the productive rate to a point fatal to the Price System. In the past, Technocracy has pointed out these two trends. Current literature is full of material which shows that they still continue, and we have but to refer again to the National Resources Committee of the United States Government for confirmation of Technocracy's statements:

> Manhour requirements per unit of output in manufacturing industries as a whole were cut nearly in half between 1920 and 1934. Except for minor set-backs in 1923, 1929, 1933, and 1934, manhours required per 100 units of output, declined steadily from 100 in 1920 to 56 in 1934. The rise of 40 percent in output up to 1929 took place with no additional manhours; in fact there was a drop of nearly two percent.

Let us see what is happening in individual cases in the manufacture of goods today.

The December *Machinery* tells of a new type of grinding equipment used to finish parts to 0.0001 of an inch which is driven by electrical motors with spindle speeds as high as 42,500 r.p.m., thus markedly reducing the set-up time. It also tells us that with tungsten carbide tool edges a brass ring used in automobile transmissions is worked on simultaneously by five tools, removing ⅛ of an inch of material at a cutting speed of 550 feet per minute, and turning out 125 pieces an hour. Again, that the electro-limit gage on tin strip mills provides an accuracy at plus or minus 0.00025 of an inch at a speed of 1500 feet per minute.

In *Steel* we find that the number of tractors in the United States has increased from 505,933 in 1925 to 1,500,000 in 1937. We also find that machine tool sales increased in 1937 by 40 percent. And we read that:

> The desire and necessity for higher speeds and more power has resulted in a constant development, not only of electric motors but also bearings, belts, chains, lubricants, clutches, couplings, gears, variable speed and hydraulic transmissions and all of the other mechanical elements in connection with the transmission of power from the motor to the machine.

And on through the parade. An individual spending his entire time could not keep pace with the flood of improvements. New arc welding equipment welds ¼ inch high tensile steel at the rate of 40 feet per hour. Another new machine makes 57 parts in brass with a 40 percent saving over the old method of sand casting, machining and finishing. The director of a large metal works is quoted by *Steel* as saying:

'The drive has been to reduce costs and to eliminate much tedious hand labor.'

But all is not sheer unleashed force. What elephant, with his reputedly delicate touch, could equal the performance of a huge steam hammer of many tons capacity that can hammer a nail into a plank at the rate of 1/20 inch per stroke? Picture the precision and delicacy of another new machine that weighs 250,000 pounds, but which can mill steel frames to specified dimensions of plus or minus 0.0005 of an inch. This machine which is in the plant of the Electro-Motive Corporation, producing diesels for locomotives, is operated by 18 motors ranging from ¾ to 30 horsepower each. It performs six different operations simultaneously. In this plant the production of large engines is facilitated by the operation of one gigantic machine after another, and this plant is new. It is producing machines for the conversion of more power, and it is not alone in its field.

Here is some more precision:

> There is a better way to produce extremely small parts than in sub-press dies mounted in a power press. Faster production and automatic operation can be secured from a combined electrically operated press, punch and die. The electrical equipment can be very small and need only occupy a small amount of bench space.

So begins an article in the *American Machinist* which describes a new press that punches and blanks five exceedingly small parts per second. (The dimensions of this small blank are 0.2 of an inch in length, 0.025 inch at the side end, 0.01 inch at the narrow end, with a hole that is .025 of an inch in diameter.)

From *Machinery* we learn that a new completely automatic broaching machine for connecting-rods has a production rate of 400 per hour.

From *Steel* again, we learn of what is happening to freight transportation. The new 50-ton, all welded, steel box-cars weigh 10,000 pounds less than the standard box-car. In the same magazine, we jump to high-pressure die casting and quote an executive who says:

> Air operated machines forcing metal into the dies under 450 to 500 pounds per square inch pressure are obsolete today, in our opinion. In new machines, molten metal is ladled into a cylinder and forced into the dies at 5,000 to 15,000 pounds pressure per square inch.

Technology strikes again.

Another executive says: 'Many machines are built almost entirely of die cast parts; one interesting unit consists of no less than 71 die castings.'

And so it goes on. All evidence indicates that the trend of America's future lies in the production of more physical wealth with an ever-declining expenditure of human effort. Here is another typical item illustrating the strength of this contention of Technocracy. We draw it from *Iron Age,* one of the upholders of the Price System.

> Rims that at one time were butt-welded used two men to a welder and the work clamping, flashing, and push-up were controlled manually. A day's work at its peak was some 1300 rims for nine hours for two men. Three thousand five hundred rims using a fully automatic welder, air operated device and hydraulic push-up is no longer a rarity. Seam welders formerly operated at a rate of three to four feet per minute; now they do ten to eight feet per minute. Spot welders were made to operate at a peak of 90 spots per minute. By putting automatic control on these welders the speed has been increased to 200 spots a minute. To complete a steel floor of the Chrysler 'Royal' motor car and give it greater strength and rigidity, some 20 re-enforcing pieces are placed in a massive new hydromatic welding machine and the operator throws the switch and 164 points are welded in 16 seconds.

Following upon the heels of the mechanical cotton picker, comes the announcement of the new centrifugal cotton gin, not fully proven yet, but the greatest improvement since the days of Ely Whitney. If it comes up to expectations it will prove to be the missing link between the mechanical cotton picker and the spinning mill. Its effect on employment will be pronounced.

For the ladies, more stockings in less time! An automatic welt device for full-fashioned hosiery machines has been announced. Production of hosiery is increased 20 to 25 percent by the use of this device. This from the *Textile World,* January, 1938.

And jumping from silk stockings to steel ships, we see going down the ways, the world's largest all-welded ship, the *J. W. Van Dyke,* 18,500 tons, which incidentally, will discharge its oil cargo at the rate of 630,000 gallons an hour!

Goods For You

No epic in all past history runs with such sweep and force as the epic of American technology. It is repeated in automobiles, radios, cigarettes and shoes. Yet even in its magnificence, this industrial machine falls far short of what it could be. Technocracy lauds it, not for the sake of rhapsodic eulogy, but merely to indicate its inordinate productivity, as compared with that of all past ages. Yet this industrial machine lags behind its own best practices. The greater part of it is more than ten years old; a large percentage is more than twenty years old. It operates at a low load factor, and if this were stepped up, even the present equipment would produce an actual abundance for all—an abundance that could not be distributed by any Price System mechanism of distribution. Technocracy proposes, not only to step up the load factor, but to install in all fields, the most efficient technological processes that research and engineering can produce. Technocracy proposes that these shall be functionally controlled in operating sequences, by vertical alignments of all functional capacities. With this method of control all wasteful operations will cease. All material produced will provide the optimum of serviceability. Technocracy will integrate the performances of up-to-the-minute technology into a productive and distributive mechanism that will confound the imagination of any contemporary observer.

Tomorrow we will look upon the machine as a whole. Today, we can but look at the construction of that machine—in this article, its technological aspects.

One of the most common commodities is paper. Its production, highly mechanized is still advancing. We quote from *Power Plant Engineering:*

> From the throats of scores of industrial power plant engineers and executives wearied with fighting old equipment, has come the wail 'What wouldn't I give for a brand-new, up-to-the-minute, high-pressure plant with no old equipment to hook onto and maintain.'

The new mill of the West Virginia Pulp and Paper Company, just placed in operation at Charleston, South Carolina, is new from the ground up. All steam is generated at high pressure. Two by-product fuels are used. (These two by-products, black liquor and bark, produce 46.8 percent of the total energy used.) A system of meters, instruments and controls gives complete control and check over operations. The mill has a capacity of 250 tons of kraft pulp and 250 tons of liner board per day made on an enormous 242 inch paper machine with space enough left in the present machine room to house another similar giant.

All of us like to eat fairly regularly, and in the machinery which feeds the millions of the United States and Canada we see a high degree of development, especially in the direction of straight-line processing, and fully automatic packaging and bottling machinery. During 1937 many devices for control, handling, measuring, mixing, packaging and shipping of food products were perfected. The magazine, *Food Industries,* lists numbers of them every month and in a random search of one or two pages we find an announcement of a semi-liquid food filler which fills 150 packages a minute.

The same magazine gives an account of the improvements in the quick-freezing of foods, a process publicized by Technocracy some years ago, and that has now grown to enormous proportions of output. It has been found that the faster the freezing process the better the food is when defrosted. However, if an extremely low temperature is used in freezing, it has an undesirable effect on the cell structure of the food. This new method involves the freezing of food in a special machine in just six minutes at 3° to 5° Fahrenheit above zero, which is a relatively high temperature. This particular machine has a capacity of 500 pounds of fruit an hour. More like it will follow.

In the making of ice cream, the direct-expansion continuous freezer is used. A continuous stream of ingredients enters at one end, and a constant stream of ice cream leaves at the other.

To guard the eyes of 900 students in a new Pennsylvania High School, two pairs of electric eyes do a tireless and unobtrusive daily job. When the level of illumination on these desks drops to 15 foot-candles the indirect lighting installation automatically switches on, giving 20 foot-candles on the inside rows of desks, and 12 foot-candles on the outside rows. This we learn in the *Electrical World.*

Incidentally, the National Resources Committee lists 143 uses of the electric eye and states: 'Even an ultra conservative estimate of the number of workers whose job could be done better and more economically by the photoelectric cell and associated equipment would probably be at least 250,000.'

To conclude this kaleidoscope of technological improvements on the American front we enumerate but a few more items of particular significance. Let us first return to a statement issued by Howard Scott, Director-in-Chief of Technocracy Inc., some four years ago:

> A 'social steady state' is a social mechanism whose per-capita rate of energy conversion is not changing appreciably with time. Social change, on the other hand, may be defined as the change in the per-capita rate of energy conversion, or the change from one order of magnitude to another in the social conversion of the available energy. All social history prior to the last century and a half, viewed technologically, may therefore be described as the record of a steady state. Only within the last hundred and fifty years has there been introduced a technique that has specifically caused social change. Technology, as the executor of physical science, is the instrument for effecting social change.

Summing up we repeat that each and every one of the items listed herewith are examples of the technology that is instrumental in effecting social change. As a civilization produces so does it live. As the means whereby we live, advance from a primitive type to a technological type, so must our method of social control advance from a primitive to a technological method of social control. The abundant products of power technology, and the constant reduction in man-hours, make effective distribution more and more of an impossibility under a Price System, and a plant which cannot distribute cannot operate. Soon the Price System on the North American Continent will reach the point where it can no longer operate at all. Social change is here.

Instrumental in effecting social change on this Continent is the new mass production plant of the General Motors at Detroit for building light weight diesel engines at the rate of fifty every eight hours.

Instrumental in effecting social change is the equipment displayed at the recent road show in Cleveland, where visitors saw a 'veritable forest' of new equipment for building highways. And turning to the National Resources Committee Report we read: '.... the over-all effect of the trend toward mass production has been definitely to reduce cost and definitely to reduce the demand for human labor per unit of work performed in the highway construction field.'

And instrumental in effecting social change are the complex, highly sensitive and accurate methods of automatic control that are dethroning man from his last refuge —the mere supervision of automatic machinery. New control devices remove the possibility of human error in delicate processes, remove the human lack of skill in intricate maneuvers, and remove the general inconvenience of human fatigue. Automatic control systems employing valves, blowers, and cells in the control of temperature, humidity, pressure, levels, and speed, 'eliminate the hazards of turning carefully developed, intricate processes over to plant operatives.'

To quote again from *Steel:*

> Illustrative of the intricate processes in industry which may be automatically controlled is the equipment developed by one of the engineering companies for processing tobacco. This equipment adds moisture to tobacco in 19 minutes, replacing a previous sweat-room process requiring two weeks. During the 19 minutes, the automatic equipment operates 40 valves from one to six times each, thus performing a process which would be impossible manually.

Technocracy salutes the onward march of technology. The dawn of a new age, newer even than all of this, is upon us, and it is part of the American spirit that change should be accepted freely and gladly. Technocracy's job is one of preparation for the New America, for we know that when technology moves at this rate, there is only one side to be on.

Technocracy Bibliography

Below is a revised list of the books recommended to the attention of Technocrats to be read in connection with the Technocracy Study Course. The list was prepared by the Division of Education, Technocracy Inc.

Book	Author	Publisher	City	Pages	Date	Price
MATTER AND ENERGY						
Elementary						
This Mechanical World	Mott-Smith, Morton	D. Appleton Century	New York	232	1931	$2.00
Heat and Its Workings	Mott-Smith, Morton	D. Appleton Century	New York	239	1933	$2.00
The Story of Energy	Mott-Smith, Morton	D. Appleton Century	New York	305	1934	$2.00
Matter and Motion	Maxwell, J. Clerk	MacMillan Co.	New York	163	1920	$2.00
An Hour of Physics	Andrade, E. N. da C.	J. B. Lippincott Co.	Phila.	170	1930	$1.00
The Spirit of Chemistry	Findlay, Alexander	Longmans, Green	New York	510	1934	$4.00
Physico-Chemical Evolution	Guye, Ch. Eug.	E. P. Dutton and Co.	New York	172	1926	$2.40
Advanced						
A Textbook of Physics	Grimsehl, E.	Blackie and Son	London	312	1933	$3.15
Thermodynamics	Planck, Max	Longmans, Green	New York	...	....	$4.80
Theoretical Chemistry	Nernst, Walter	MacMillan & Co.	London	922	1923	$7.00
THE EARTH						
Elementary						
Introduction to Geology	Branson and Tarr	McGraw-Hill	New York	470	1935	$3.75
Data of Geochemistry	Clarke, F. W.	U. S. Geological Survey	Washington	...	....	$1.00
Outlines of Historical Geology	Schuchert	Wiley and Sons	New York	241	1937	$3.00
Man and the Vertebrates	Romer, Alfred S.	U. of Chicago Press	Chicago	427	1933	....
ORGANISMS						
Elementary						
Exchange of Energy	Newburgh and Johnston	Charles C. Thomas	Springfield	104	1930	$2.00
Animal Life and Social Growth	Allee, W. C.	Williams and Wilkins	Baltimore	160	1932	$1.00
Biology of Population Growth	Pearl, Raymond	A. A. Knopf	New York	288	1930	$4.50
Origin of Species	Darwin, Charles	MacMillan Co.	New York	557	1927	$1.00
Population Trends in U. S.	Thompson and Whelpton	McGraw-Hill	New York	...	1933	$4.00
Advanced						
Photosynthesis	Spohr, H. A.	Chemical Catalogue Co.	New York	393	1926	....
Science of Nutrition	Lusk, Wm. Graham	W. B. Saunders Co.	Phila., Pa.	844	1928	$7.00
Elements of Physical Biology	Lotka, Alfred J.	Williams and Wilkins	Baltimore	460	1925	$2.50
THE RISE OF THE HUMAN SPECIES						
Man and Metals	Rickard, T. A.	McGraw-Hill	New York	1061	1932	$10.00
Two Thousand Years of Science	Harvey-Gibson, R. J.	Black, Limited	London	346	1929	....
History of Mechanical Inventions	Usher, A. P.	McGraw-Hill	New York	401	1929	$5.00
Behemoth: The Story of Power	Hodgins and Magoun	Doubleday-Doran	New York	354	1932	$2.50
Number	Dantzig, Tobias	MacMillan Co.	New York	262	1933	$2.50
A History of Physics	Cajori, F.	MacMillan Co.	New York	424	1929	$4.00
Mathematics for the Million	Hogben, L.	W. W. Norton	New York	647	1937	$3.75
RESOURCES						
Mineral Economics	Tryon and Eckel	McGraw-Hill	New York	311	1932	$2.59
Minerals in Modern Industry	Voskuil, W. H.	Wiley and Sons	New York	350	1930	$3.75
World Minerals and World Politics	Leith, C. K.	McGraw-Hill	New York	213	1931	$2.00
Mineral Raw Materials	U. S. Bureau of Mines	McGraw-Hill	New York	342	....	$5.00
Reshaping Agriculture	Willcox, O. W.	W. W. Norton and Co.	New York	157	1934	$2.00
ABC of Agrobiology	Willcox, O. W.	W. W. Norton and Co.	New York	317	1937	$2.75
PRICE SYSTEM RULES OF THE GAME						
A Primer of Money	Woodward and Rose	McGraw-Hill	New York	322	1935	$2.50
Profits	Foster and Catchings	Houghton Mifflin Co.	Boston	465	1925	$2.00
Theory of the Leisure Class	Veblen, Thorstein	The Vanguard Press	New York	400	1932	$ .95
Theory of Business Enterprise	Veblen, Thorstein	Charles Scribner's	New York	400	1936	$2.00
Wealth, Virtual Wealth and Debt	Soddy, Frederick	E. P. Dutton and Co.	New York	320	1933	$2.50
Security Speculation	Flynn, John T.	Harcourt Brace and Co.	New York	319	1934	$3.00
Engineers and the Price System	Veblen, Thorstein	The Viking Press	New York	...	1936	$1.50
Economic Consequences of Power Production	Henderson, Fred	Reynal and Hitchcock	New York	220	1933	$2.00
Arms and the Men		Doubleday-Doran	New York	...	1934	$ .10
History of Great American Fortunes	Myer, Gustavus	Modern Library	New York	730	1937	$1.25
The Robber Barons	Iosephson, Mathew	Harcourt Brace	New York	453	1934	$1.49
NATURE OF THE HUMAN ANIMAL						
Folkways	Sumner, W. G.	Ginn and Co.	New York	692	1933	$5.00
Conditioned Reflexes	Pavlov, Ivan	Oxford University Press	New York	430	1927	$8.50
Sex and the Internal Secretions	Allen, Edgar	Williams and Wilkins	Baltimore	951	1932	$10.00
Bodily Changes	Cannon, Walter B.	D. Appleton and Co.	New York	404	1929	....
The Wisdom of the Body	Cannon, Walter B.	W. W. Morton and Co.	New York	312	1932	$3.50
STATISTICAL DATA						
U. S. Government Publications						
Statistical Abstracts of the U. S. (Issued Annually)						$1.25
U. S. Mineral Yearbook						$2.25
U. S. Yearbook of Agriculture						$2.00
Statistics of Railways in the U. S. (Issued Annually)						$1.25
Monthly Labor Review					Per Year	$4.75
Bulletin of the Federal Reserve Board (Issued Monthly)					Per Year	$2.00
Bulletins of the U. S. Bureau of Labor Statistics					On Application	....
Statistics of Income (Issued Annually)						$ .15
Technological Trends and National Policy					1937	$1.00

All U. S. Government Publications may be obtained from the Superintendent of Documents, Washington, D. C.

Canadian Government Publications

Canada Year Book	Dominion Bureau of Statistics		Ottawa, Ontario			$1.50
MISCELLANEOUS						
America's Capacity to Consume		Brookings Institution	Washington	...	1934	$3.00
Internal Debts of the United States	Clark, Evans	MacMillan Co.	New York	430	1933	$4.50

In the Field

Lecture Tours

With two recent major lecture tours, Technocracy has been advanced in many centers on the Continent. The first of these was the tour through eastern-central United States by the Director-in-Chief, Howard Scott, as announced in our previous issue. First flashes indicated highly successful meetings in Cleveland and Akron. Coincidental with this, was the tour of G. D. Koe, authorized speaker of Edmonton, Alberta, through Manitoba, Saskatchewan, and Alberta, under the capable direction of Section 1, R. D. 10652 in Saskatoon.

Some New Offices

Two Sections in the Los Angeles area report moving into new, attractively located offices. They are Section 4 and Section 17 of R. D. 11834. In the heart of downtown San Francisco, Section 1, R. D. 12237 has opened offices, with a large illuminated Monad sign in one of the windows, and Vancouver's energetic Section 1, has moved into new commodious offices on the street level at 307 West Pender Street. In Cleveland, 8141-2 has moved into larger offices at 438 The Old Arcade. In Edmonton, 11353-1 has moved into street level offices on the main street—at 10413 Jasper Avenue. Section 7340-1 in New York has moved uptown into larger offices at 23 West 35th Street—an auspicious move, for this was an address of the Technical Alliance in 1921!

More Sections

Indicative of Technocracy's virility in Ohio is the chartering of Section 4, R. D. 8141, in Cuyahoga Falls. Following close upon the heels of this arrival came the birth of the twins—Sections 5 and 6 in West Park and Willoughby, Ohio. Welcome!

New York Crew Invades Illinois!

On April 1, a streamlined 'squad car' in Technocracy's attractive official grey, left New York, bearing Allan Langley, organizer of New York's first Section, and Clifford Williams and Charles Horan, members of 7340-1. On each side door and on the rear of the car, the vermilion insignia of Technocracy informs all witnesses of its identity. Bearing abundant supplies of literature and organization equipment, the crew has concentrated on Springfield and Decatur, and as a result the Director-in-Chief spoke there on May 8 and 9. Watch Illinois for rapid organization!

(Front Cover) World's largest bulb on Edison tower at Menlo Park, N. J., symbolizes the possibilities of modern technology. It is fourteen feet high, and the twelve bulbs inside it carry 5,200 watts. (Corning Glass Works Photo)

(Back Cover) One of two units of the 208,000 kilowatt generator of the State Line Generating Company at Hammon, Indiana, near Chicago. The generator is a triple compound unit, and is the world's largest. (Ewing Galloway Photo)

TECHNOCRACY

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Official Literature

Pamphlets

Technocracy, Some Questions Answered	10 cents
The Mystery of Money	10 cents
Introduction to Technocracy	25 cents
Science vs. Chaos	10 cents
Technocracy In Plain Terms	5 cents

Periodicals

Technocracy, 155 East 44th St., New York, N. Y.; 15 cents, $1.50 for 12 issues, $1.00 for 8 issues.
Technocracy Digest, 307 W. Pender St., Vancouver, B. C.; 10 cents, $1.00 for 12 issues.
Eighty-One Forty-One, 438 The Old Arcade, Cleveland, Ohio; 10 cents, $1.00 for 12 issues.
The Technocrat, 3801 Eagle Rock Blvd., Los Angeles, Calif.; 10 cents, $1.00 for 12 issues.
The Section Post, P. O. Box 1003, Portland, Oregon; 10 cents, $1.00 for 12 issues.
The Northern Technocrat, Box 371, Edmonton, Alberta; 10 cents, $1.00 for 12 issues.
The Foothills Technocrat, 305 I. O. O. F. Bldg., Calgary, Alberta; 10 cents, $1.00 for 12 issues.
Streamline Age, 339 First Avenue, Phoenix, Arizona; 15 cents, $1.50 for 12 issues.
The Southwest Corner, 964 Fifth Avenue, San Diego, Calif.; 5 cents, 50 cents for 12 issues.
Technocratic America, Technocracy Inc., Fontana, Calif.; 5 cents, 50 cents for 12 issues.
Ninety-Seven Forty-Nine, 305 Affleck Bldg., Winnipeg, Manitoba; 5 cents, 50 cents for 12 issues.
The Desert Salute, Box 123 Hinkley, Calif.; gratis.

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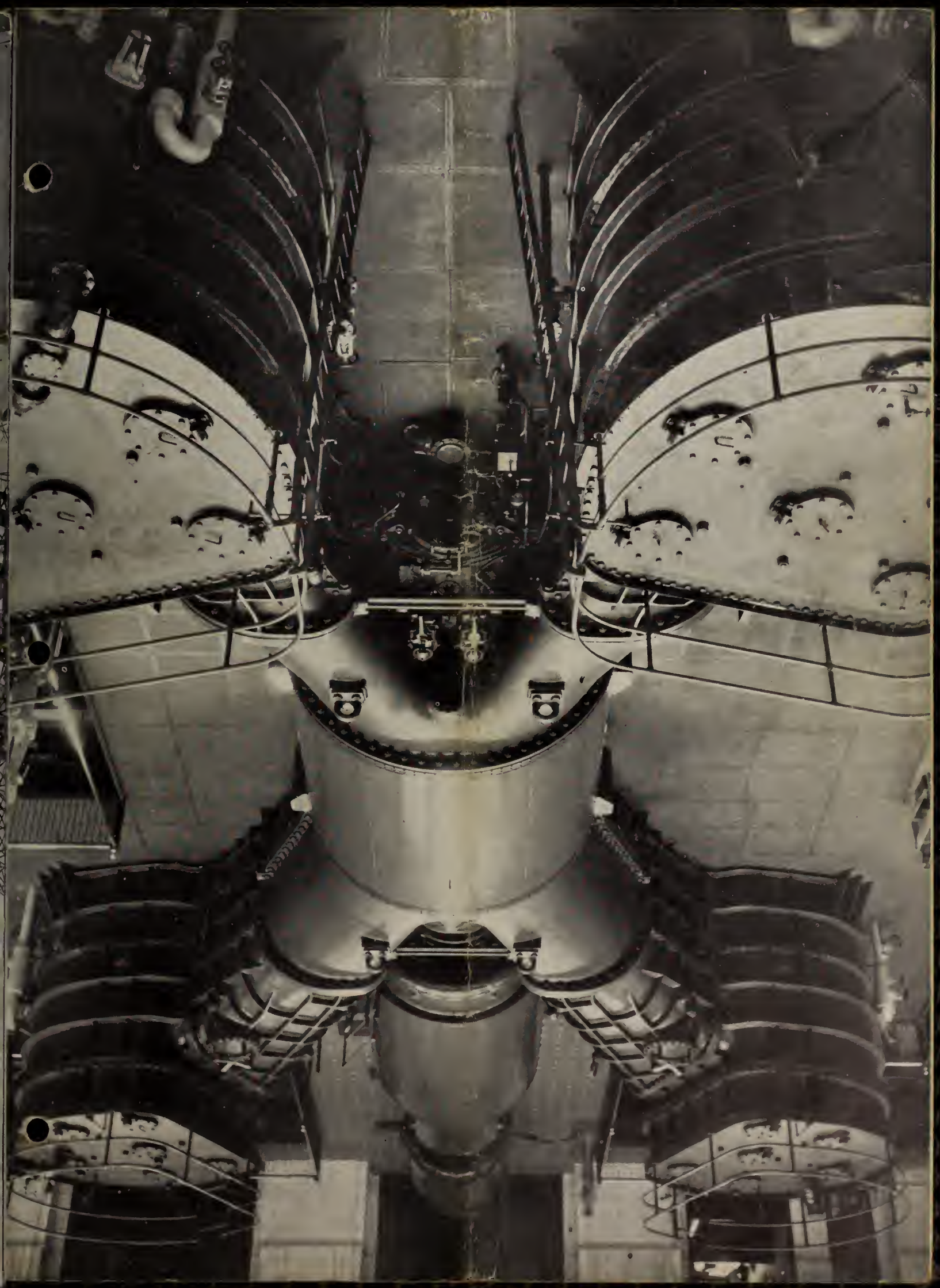
LOW LOAD-FACTOR ON TRANSPORTATION SYSTEM

This Pennsylvania Railroad yard filled with empty gondolas is typical of America's vast idle capacity in production and transportation equipment, and also depicts the current state of business. (Ewing Galloway Photo)



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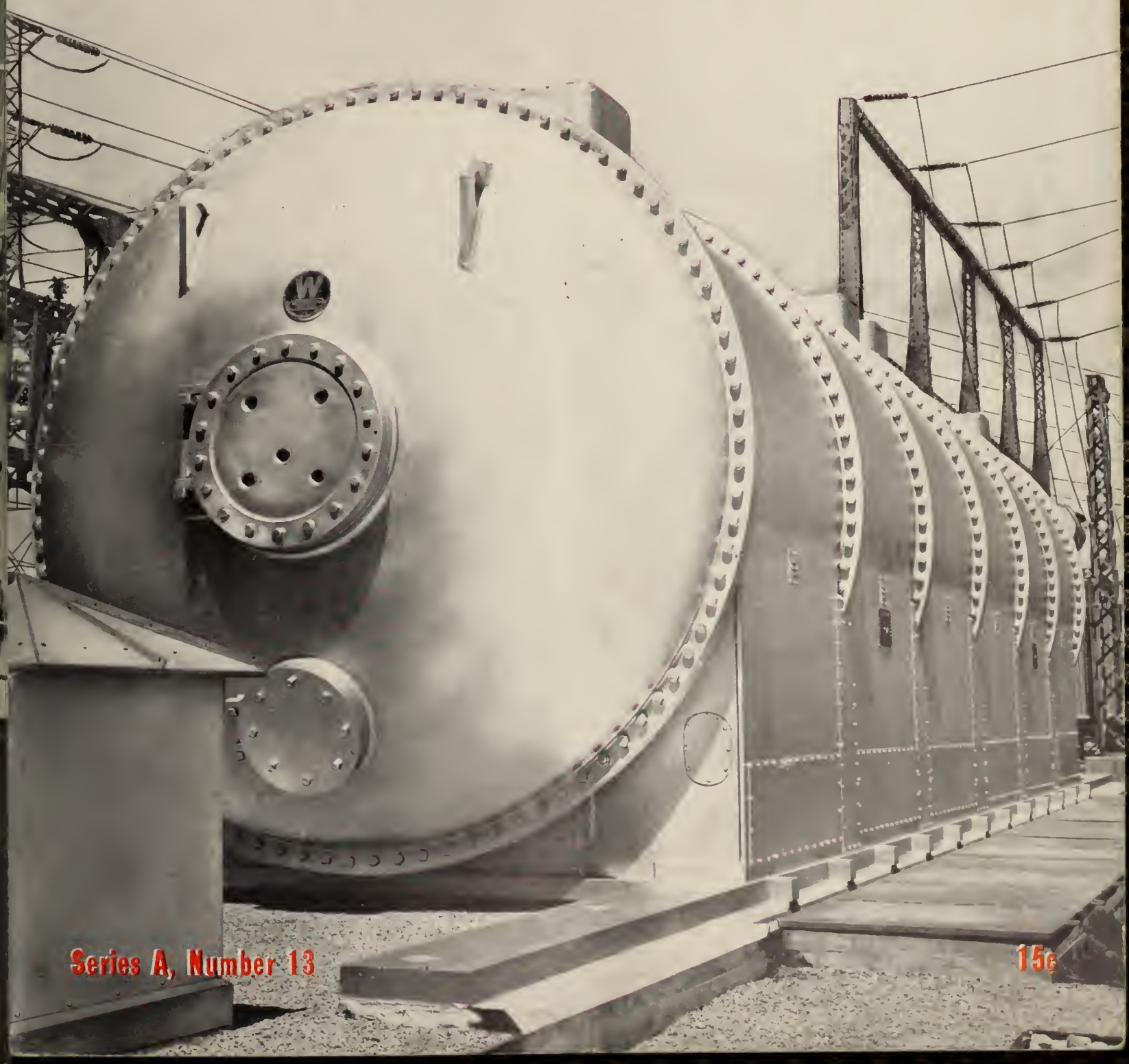

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ENERGY WITHOUT SWEAT

A generator shaft at Norris Dam, Tennessee. Only thirty-three people are employed on this push-button controlled TVA plant which turns out 132,-000 horsepower of low cost electricity. (A TVA Photo)

TECHNOCRACY

The New America

OFFICIAL MAGAZINE OF TECHNOCRACY Inc.

August

Editorial

1938

In Flanders fields the poppies blow
Between the crosses, row on row,
That mark our place; and in the sky
The larks, still bravely singing, fly
Scarce heard amid the guns below.
—John McCrae

THE United States of America entered the World War in April, 1917. This disastrous debacle in making the world safe for democracy was terminated by the Armistice on November 11, 1918. Fifty-one thousand men of the American armed forces died in action during that glorious participation, and two hundred and thirty-four thousand were combatant casualties during this period. The dead we no longer have with us; they are our heroic dead. But our country still has the wounded, maimed, and diseased, and several million veterans who still insist that the honors of war shall be paid for in further economic benefactions.

War is deadly. War is devastating. War is horrible.

Propaganda for and against military warfare screams across the pages of our press. We burn with righteous indignation over the daily air-raids blasting human life out of existence with Japanese messages of good will showered from the skies. The United States as a nation protests this hideous outrage on human decency and civilized warfare. And Secretary Cordell Hull issues an official protest from the Department of State to the Japanese government. We Americans become incensed at this willful barbarism of destruction displayed by the Japanese. In the hypocrisy of our righteous indignation we forget, if we ever knew, that the United States supplies Japan with 15 million barrels of petroleum products annually; that American oil companies have erected tank farms in Japan through their Japanese subsidiaries.

Japan produces only 2,300,000 barrels of petroleum a year, and consumes in excess of 22,000,000 barrels yearly. Japan is the largest purchaser of scrap steel in the United States, and the largest buyer of American cotton. We sell Japan minerals, scrap metals, machinery, airplanes, and munitions. In Canada, Japan is taking copper from the Grandby Consolidated Mining Company at Copper Mountain, British Columbia. Japan is investigating British Columbia nickel. Japan is mining a concession of iron magnetite on the Queen Charlotte Islands. Japan is also running two timber concessions in British Columbia to supply the raw material for Japanese rayon and lumber industries.

Japan makes war on China with a goodly contribution of the sinews of war from this country and this Continent. The United States and Canada have profited hugely through supplying these sinews of war to Japan. Is it not astounding that our righteous indignation is such a hypocrisy? We are horrified at the Chinese dead, and we are elated over our profits in exports to Japan. We must realize that when we sell Japan munitions, copper, lead, steel, zinc, petroleum, nickel, airplanes, and engines, that the Japanese can use American-produced and American-fabricated materials to kill Chinese men, women, and babies.

Why not? War is always good business, even if human beings die to provide the business.

The same righteous indignation sweeps over us again with the continuous aerial bombardment of Spanish cities. The communists scream 'Fascists!' at Franco, and the fascists scream 'Communists!' at the loyalists. But American business sells the sinews of war to both sides, chiefly to Franco. The General Motors Export Division is whooping it up in high glee, trying to deliver a huge order of trucks and cars to the fascist army of Franco.

What is good for business in this Power Age, is generally death and disease for some one else.

America is deluged with the insidious propaganda of military warfare. America is infected with the diseased propaganda of pacifistic peace. The insidious propaganda for military warfare emanates from the national business associations of the United States and Canada, the political governments, and the army and navy departments of our federal governments, facilitated by that part of the press of the Continent which is for bigger and better armies and navies. The appeal of this propaganda to the public is based on the protection of our national honor, and the defense of our eminent domain.

Business and the national administrations have the real primary purpose of building up a popular demand for larger armed forces, so that federal priming may be pumped into the capital goods industries. Thus financial salvation will be injected into their corporate structure by this pumping in of federal funds, which the citizens

of the United States and Canada will pay for through added taxes. Modern business in the United States is insanely clever. It wishes the people of the United States to finance the next war at their own expense, and to pay business for making the sucker citizen pay for it.

The sucker always pays.

The army and navy naturally want larger and more efficient forces. Outside of the industrial personnel of this country and this Continent, they are the only efficient and disciplined bodies, and the least infected with business values.

Specifications for Defense

Technocracy specifies that the naval force of the United States shall be of such size that its Pacific and Atlantic fleets can efficaciously meet any attempted naval attack on this country and this Continent on either coast simultaneously.

Technocracy specifies that the military armed forces of the United States shall be of such size and organization as to guarantee the sovereign domain of this country and this Continent from both European and Asiatic invasion simultaneously.

Technocracy specifies an air force of such size and organization that its Pacific and Atlantic squadrons can efficaciously repel any aerial attack from either the Atlantic or Pacific simultaneously.

Technocracy greets the present military budget of the United States as being entirely incapable of meeting the specifications of Technocracy for the armed forces; and that while the budget is deficient to meet any modern specifications, the expenditure of this present budget will unfortunately result in the supplying of equipment that is obsolete and antiquated by the time it is completed for military use. Capable as our army and navy are in the matter of trained personnel, they, nevertheless, are throttled by the hoary traditions of the hand tool age. Military warfare of the past has been predicated upon the theory of training human beings to acquire skill in killing the enemy by the crude method of hand tools. The traditions of our army and navy have grown up out of this dim past, embellished with the caste distinction of the professional soldier and the mercenary.

Military warfare of the past, with but few exceptions, has been conducted as a regimented mass of human beings, led by a professional officer class, for the conquest and defeat of the enemy. The paid mercenary in the conflict of yesterday, merely engaged in the international business of warfare instead of restricting it to his own country.

Military warfare is as old as business. The march of technology has already doomed business to its extinction, and is even now moving into the field of military warfare with a sweeping stride. The militarist of yesterday and today is totally incompetent to design the technological equipment of the warfare of tomorrow, if such need does arrive.

The United States is still training its future naval officers at Annapolis to be officers and gentlemen in the tradition of the seamanship of the square rigger. Our navy officer personnel is dressed differently from our sailors and our non-commissioned officers. The uniform of the common sailor of the United States navy is an anachronism that belongs back with the slavery of sailing ships. Our naval equipment is wallowing along in the rut of the technology of backward countries. The navy of the United States has not brought forth a single, fundamental advance in hull design, although it has done a swell job of imitation and improvement. Would our lumbering battle wagons with eight hundred men aboard not be costly death-traps against an attacking fleet of much smaller size units with three-point suspension hulls, diesel-driven at seventy miles an hour? In this modern age, does the navy still insist on having a plethora of men, merely to enhance officer prestige? Naval equipment is no different from any other equipment. The maximum of efficiency can be attained in any technological equipment only when the operating man-power is reduced to a minimum.

Our army is suffering from the same fungus of tradition, in that West Point trains officers and gentlemen for the army in the best sense of our military tradition. But our army does not train all of its members to be officers in all fields. In any technological army, military or otherwise, the theory of training is the direct antithesis of the military training of the past or present. As more technology is introduced, it will be only a question of time before the army and the navy, as well as agriculture, industry, and health will have to come under technological direction. Therefore, we should realize now, before it is too late, that in the machine warfare of tomorrow technological direction will have to replace the militaristic direction of yesterday; and that our army and navy will be an entire trained personnel of technologists, engineers, and mechanics, wherein every soldier will be an engineer and mechanic, a navigator, an aviator, and ballistics expert. Then, and only then, will the baloney of Napoleon Bonaparte's statement, that every soldier carries a field marshal's baton in his knapsack, become a potential reality.

Sherman said that war is hell. The militaristic wars of yesterday have spread death and devastation over wide areas, but always with the moral compunction of defeating their opponents for the purposes of economic enslavement. It therefore follows that militaristic warfare has been utterly incapable of being utterly ruthless. Military warfare has been hideous, cruel, horrible, but never ruthless.

A Continent—and National Defeatism

Ultimately the Continent of North America will be compelled by the advance of technology to become one geographical unit, from the Panama to the Pole, from Hawaii to Bermuda. This area of North America has no choice but to become one economic organism, one Continent, one country, and one people—one and indivisible. This country and this Continent have the land, the climate, the resources, the men, and the machines, which combined with the technological orchestration of human ability can ensure the leadership of civilization to this Continent for the next four thousand years.

No other area of the world's surface has anything very much that this Continent needs or wants. This Continent has everything to lose and nothing to gain in engaging in anybody's war anywhere off this Continent.

Our militarists and our business men want larger armed forces for this country, and yet they proclaim that they do not want war. Our pacifists, our intellectual liberals, and our marxian communists are as rabid as the fascist reactionary in their declaration that nothing is worth fighting for. An appalling state of affairs! In spite of their disagreements, our politicians, our business interests, our army and our navy, our pacifists, our com-

munists, and our democrats are common in their agreement that no one wants to fight for anything—except in defense of things as they are. The attitude of all of these conflicting groups is a negative attitude. The only positive attitude they possess is that they will fight to defend the status quo from outside aggression.

This is distinctly national defeatism. All of these parties in our national complex do not propose to fight to advance this country and this Continent to a greater tomorrow. They all proclaim that they are willing to fight the negative battle of defeatist defense against outside attack.

The Cost of Peace

All men die, sooner or later. Death is the end of life. Death comes to us all, whether in militaristic war or in peace. We honor those who die on the battlefields of war; theirs is the heroism of death in defense of our national honor and conquest. Death is always final, the finality from which there is no return. Death on the field of battle is mostly sudden. Death in the disasters of peace is just as sudden. And yet we glorify those who die in war as the heroic dead of the nation, while those who die in the putridity of the peace of this Price System are not the nation's heroic dead—although they are just as dead as our heroes and far more numerous.

The National Safety Council of America reports that automobile accidents in the year 1937 killed thirty-nine thousand five hundred, and injured one million three hundred and sixty thousand on the highways of the United States. They report that there were twelve thousand deaths due to homicides and murders in 1937. They further report that nineteen thousand five hundred were killed by industrial accidents last year. The National Council reports a total accident toll of one hundred and six thousand for the year 1937. In plain language, the hazards of the peace of this Price System killed twice as many in the year 1937 as were killed by one year and seven months' participation of the United States in the World War.

When one realizes that one hundred and six thousand Americans were killed in one year, one may be shocked. But let us go on. It is estimated that there are fifteen million venereal cases in the United States, inclusive of six million syphilitics. This is not war time. This is peace time. Do we realize the hazards of peace? We certainly must. We are so conscious of the hazards of peace that the citizens of this country are unwilling to be responsible for the reproduction of future Americans to the extent, it is estimated, of seven hundred thousand abortions a year.

According to the statistical record of the United States, the peace of this Price System provides more opportunity for sudden death and the fortuitous infection of syphilis for the average man than is provided by military warfare. No, Technocracy is not in favor of killing off our citizenry in either peace or war, nor are we here defending militaristic warfare. We object to military warfare, not merely because death is involved; death is involved in all life; but because military warfare kills off the physicaliy fit and permits the unfit to live and propagate.

In the United States, twelve million families out of twenty-eight million total families, receive less than $1,500 a year per family. These are the families that have the largest progeny per family. And it is in this income class that death and disease bring a whole string of casualties.

We object to the casualties of the peace of this Price System because they reduce the fit to the unfit, and increase the poverty and progeny of the unfit. We object to the inertia of the pacifist, and the senility of the Price System militarist; both are psychoses of this Price System; both are the expressions of national defeatism in this Power Age. Why should we fight to maintain the peace of this Price System which is more dangerous than war? Has it reached such a state of defeatism that nothing positive is worth fighting for? One is forced to ask the question: Is the liberty and the freedom of this Price System worth the expenditure of a single human life in its defense? Hell no!

The War to End Peace

The frontier days of yesterday are past. The frontiers of America are no longer geographical. The frontiers of America's tomorrow are technological. The patriotism of this Price System is the last refuge of the chiseler, and the solace of the sucker. In peace he can die in the ditch; in war he can die in glory. America must needs have a new patriotism for its technological frontiers of tomorrow. It must needs be a patriotism of advance, a positive proposition for the youth of the New America, a patriotism that is a negation of all that was yesterday, a patriotism so great that the youth of today will fight for it, and if necessary die for it, in order to provide the youth yet to come with a country worth living for.

America has no war off this Continent. America's war is here and now, in this country and on this Continent—a patriotic war against the peace of this Price System, against its poverty and its malnutrition, its crime, its sudden death, and its disease. It is a war of plenty versus poverty, of technology versus toil, the war of tomorrow against yesterday, of science versus chaos. It is America's only war. It is a war to annihilate the social syphilis of business and its paresis, political administration. This is the only war that the youth of America will fight for.

Within the next few years this war will have to be fought and won. The youth of America has no future until it fights and wins this war. And the senility of yesterday had better stand aside; for when the youth of America fights this war, it will be utterly ruthless. The youth will not negotiate, it will not compromise, nor will it accept surrender. It, in its greater patriotism of a New America, will present a clean, hard, bright design for living that will be the glory of all the ages. And when the youth of America presents its ultimatum, let no minority, racial, religious, or economic, attempt to bar the highway to the New America; for if one does, the youth of this Continent will concede nothing short of that minority's annihilation.

Wars end in victory or defeat, but the peace of this Price System has no end, merely disintegration. So let's offer the youth of this Continent a new war, a fight worthwhile, a battle royal, a war to fulfill this Continent's rendezvous with destiny. Let's declare war on peace, the peace of this Price System. Who in hell wants to live forever!

—By Howard Scott,
Director-in-Chief, Technocracy Inc.

The Land of the Midnight Sun

By D. C. Munster (R. D. 11353-1)

Authors note: The information contained in this article has been obtained from many sources other than government statistics—from trappers, traders, Officers of the Company of Gentleman Adventurers into Hudson's Bay, and the Royal Canadian Mounted Police. Only in regard to the more settled areas can government statistics be taken as reasonably accurate. For the rest, one must rely upon information derived from independent and reliable observers.

Never a law of God nor man runs North of Fifty-Three.

FROM the dawn of history, man has reasoned that to the north lies desolation. The peoples of Mesopotamia were astounded that the savages of the Caucasus and South Russia could survive. Tacitus, the Roman historian, voiced the common opinion of his day when he said that none but those forced to do so by the stern exigencies of war would live north of the Alps. The Moors of Spain looked upon the British Isles as the *Ultima Thule,* the last possible land on which man could exist. In 1763 the English and the French squabbled over the relative merits of Canada as opposed to the West Indian Island of Gaudeloupe. Finally the French, advised by that well-known American, Ben Franklin, chose the tropic island in preference to the northern part of this Continent. Alaska was known for some time as Seward's Folly even though it had been bought at a bargain price.

But throughout history, as man has learned to combat the forces of nature, and as he has harnessed more and more of the energy of wind, moving water, coal, oil, and gas, he has pushed back the frontiers, until now, on this Continent, only one great frontier remains—one that cannot be conquered by the methods of the Price System, but which can yield only to an integrated technological administration of the entire Continent. Power and technology will release the great north to the people of this Continent.

Today, even on this Continent, there is a belief that Canada is a land of perpetual snow. Even Canadians living in the southern parts of Canada cherish the illusion that the far north is another Greenland, buried deep under tons of ice. In every school, college, and university in North America are books overflowing with absurd statements, weird superstitions, and wholly inaccurate data in regard to the vast undeveloped empire of the sub-Arctic. This popular belief, no doubt, has its origin in the same folk-lore from which the myth of the Great American Desert was derived. Our ancient forefathers were arboreal, and they looked with dark suspicion on treeless areas.

In 1836, according to H. H. Barlow in his *Geography of the Middle Illinois Valley,* the few who thought the prairies capable of occupation were regarded as crazy visionaries. Yet technology moved in with the settlers, and the plains were conquered.

To admit that we are ignorant of one-third of the Continent of North America is a scathing indictment of our scholastic achievements. The Land of the Midnight Sun is a vast land. It covers an area of approximately 2,700,000 square miles, mostly north of the sixtieth parallel. It is subdivided into many parts. Alaska belongs politically to the United States; Yukon, Mackenzie, Keewatin, Franklin, and the Ungava portion of Quebec belong to Canada, together with Labrador, which is politically a part of Newfoundland.

This territory is as varied in its topography as in its subdivisions. Starting with Alaska, we have the mountainous coastal area, culminating in Mt. McKinley, which is 20,300 feet above sea-level. East of this we find the broken chains of the Cordilleras, called farther to the south, the Rocky Mountains. This sea of mountains includes the Yukon territory of Canada and is fringed on the north by a coastal plain.

Farther east again, lies the great flat alluvial plain of the Mackenzie, an area of clay, gravel, and sand, somewhat similar to the soils of the western plains. Across this giant watercourse that has formed the travel route to the Arctic lies the huge tableland of the Laurentian or Canadian Shield. This is one of the world's oldest formations, from a geologic point of view, and around its edges are the mineral districts of Canada, well known to eastern financial centers. This great tableland is invaded by the waters of the Hudson Bay which divides the District of Keewatin from the peninsula, Ungava. Both this area and Labrador are part of the Laurentian Shield which terminates on the Atlantic coast in great cliffs towering steeply some thousand to two thousand feet above the waves.

Beyond the mainland of Keewatin, where the long peninsulas of Boothia and Melville push out into the Arctic Ocean, lies the District of Franklin comprising islands of all sizes, from the elongated Baffin Island that blocks the mouth of the Hudson Bay, to the little nameless rocks that clutter the narrow straits and are exposed only when the summer is at its end. Baffin, Victoria, and Ellesmere, approximately 199,610, 80,450 and 78,400 square miles in extent respectively, are the largest; but Banks, Devon, Southampton, Somerset, Prince of Wales, Melville and Axel Heiberg are also of considerable size. They are all known to contain scattered deposits of coal and other minerals, but owing to their location and the primitive methods of exploration hitherto used, the information in regard to their deposits is extremely scanty and none too accurate.

The great Northland can boast of two lakes, the Great Bear and the Great Slave, which are among the largest on the Continent. They are 12,200 and 11,700 square miles in area, or about half the size each of Lake Michigan. The most amazing area in regard to lakes lies east of the Mackenzie River. This area is so studded with lakes that it is hard to see where one ends and the next begins when examining airplane photographs. These small and numerous lakes are divided by high escarpments of rock rising sheer from one lake to fall sheer

into another. Yet, if one knows where to find the gulches, divides, and even small streams, this country is passable by canoe.

Here in the north are great rivers, some flowing into the Pacific, some into the Arctic, and some into Hudson Bay and the Atlantic. The Yukon, 2,400 miles long with its tributaries adding many more miles, flows into the Pacific. That vast network of rivers, known as the Mackenzie at its northern end, comprises 2,525 miles of waterway and flows into the Arctic. To the east and draining the center of the same plateau, the Dubawnt, the George, and the Great Whale, drain thousands of square miles, while the Leaf and the Kokssoak drain the area to the north. Labrador has the Hamilton carrying water from its interior lakes toward the Atlantic Ocean. Though all these rivers are icebound in winter, they and their many tributaries are potential sources for the power that will some day open up this area to a high-energy, technological development for the people of the North American Continent.

Climate and Vegetation

As one would expect, the climate is as varied as the topography. The coastal region of Alaska is washed by the Japan Current, the warm ocean stream that gives the Californians so much to write about. Here we find a heavy rainfall, as the warm, moisture-laden air meets the cold, dry winds from the Arctic Ocean. The temperatures of the interior are colder, but no more so than the climate of North or South Dakota. Sir Frederic Stupart, Director of the Dominion Meteorological Service, states that the temperatures in the Mackenzie River Valley are similar to the temperatures that prevail in southern Alberta, or about the same as Idaho or Montana.

The Laurentian Shield between the Mackenzie and the Hudson Bay, with its sluggish rivers and numerous lakes, and bordered on the north by tundras of moss, is no colder than the interiors of Alaska and the Yukon. Its inaccessibility is due more to primitive methods of travel (canoe and dog-team) than to any inherent complications of the land structure or climate. The snowfall is light, and the lack of trees causes the snow to drift into the hollows, so that on the whole, the land is never covered to any great depth.

The trees die out over this vast plateau, not because of the cold, but for lack of depth of soil and moisture, just as they die out on the edge of the southern prairies. North of the tree-line are great open plains, covered in summer with luxuriant grass, with tundra or reindeer moss filling the low spots that to the south would be muskeg or swamp. The animals move in herds and not singly, which is why man often fails to find them. If a hunter misses a herd by a scant quarter of a mile, he may die of starvation; yet, if he but knew it, food in abundance is close at hand. The casual observer who sees neither trees nor animal life has described this area as the 'Barren Lands.'

Ungava and Labrador are rocky and tree-covered to a large extent, though the trees thin out toward the northern tip and along the coast. The climate is severe here in the winter due to the proximity of Greenland and to the icy currents that come down from the north.

During a four-month summer, abundant life flowers in the Land of the Midnight Sun. Butterflies, insects, and above all, mosquitoes flutter, whirl, and swarm throughout the twenty-four hours. But spring is short, and fall only a little longer; and during December, January, February, and March, winter lies on the land. Of these seasons, the fall and summer would be the pleasantest from the point of view of most of us, though the local inhabitants prefer the fall and winter.

On the Arctic coast during the summer months the sun never sets. It circles in the sky, approaching the northern horizon closely at midnight, but never sinking beneath it. The farther south one goes, the more the sun dips behind the curve of the globe, till finally, it disappears during the midnight hours. At the fifty-third parallel the summer nights are still bright, while two degrees farther north it is light enough to play baseball at midnight. One has to be north of the sixtieth parallel to see the true midnight sun.

The winter days of December and January in the far north are sunless, but the twilight is always there, and at no time does one encounter anything like the inky blackness of a moonless tropic night. The snow-blindness, of which one reads is not due to the glare of the sun on the snow, as is commonly supposed. It is caused by the constant strain of trying to pierce the fog of fine, dry particles of snow dancing in the air. This snow-fog is so prevalent in the fall and winter because there is a constant movement of air across the great plateaus of the north, and the dry, fine snow blows as easily as the soil from a Colorado farm. In the twilight caused by the absence of the sun, it is difficult to see any very great distance.

The silence of the northland is a fairytale. In the summer, the honking of geese, the quacking of ducks, the whistle of the swan, or the wild hysterical laughter of the crazy loon can be heard far and wide, and in the winter the bark of the fox, the howl of the wolf, the hoot of the owl, or the sharp resonant crack of the upheaving ice is audible. Near the seashore the din can be worse than that of a boiler factory. The silent north is another poet's dream. Like the politicians, the poets persist in speaking of matters of which they are wholly ignorant.

The trees covering some 60,000 to 100,000 square miles of the southern boundary of the Land of the Midnight Sun form a vast supply of pulpwood. West of the rockies are western hemlocks, Sitka spruce and cedar; farther inland are white spruce, black spruce, white birch, balsam, poplar, cottonwood, and larch. To the north, the trees die away and the sub-arctic tundra takes their place. If one draws a line from the mouth of the Churchill River on Hudson Bay across to the northeast tip of Great Bear Lake, from there to the mouth of the Mackenzie, and then west to within fifty miles of the Bering Strait, the land that lies to the north and east is the treeless land.

Animal Life

Of all the animals that inhabit this Land of the Midnight Sun, the human is perhaps the most interesting. All along the northern coasts and in Labrador, we find the Eskimo, one of the most primitive of the human species. When first encountered by the exploring whites, these people were existing in a neolithic state of culture not far removed from that of the Magdalenians who roamed the valleys of France when the Ice Age was still in progress in Europe.

They had but a little wood, since they lived beyond the tree line, so that wood was one of the most valuable possessions they knew, and was regarded with great veneration. They valued it more highly than the gold and silver coins the first explorers offered them. They had no gold, nor had they any use for it, but they had meat and skins in exchange for which they desired wood above all other things, except perhaps steel needles and knives. For fuel they used the oil drained from the blubber of the seal or whale. With wind-proof huts built of snow blocks in the winter and wind-proof clothing made of skins, they did not need fuel for more than cooking. Since they were meat-eaters, their cooking was of a primitive nature.

Today, all this is changed. The white man has introduced the frame house; and the Eskimo freezes in this inadequate shelter. Coal is being brought in at high cost since the coal deposits are not yet opened up. The outboard motor has displaced the paddle, and has become a necessity along with the gasoline with which to operate it. The rifle has taken the place of the bow and arrow or hunting spear, and the steel knife has ousted the stone one. The result of this slight advance in technological equipment has been such as to render the Eskimo no longer able to withstand the conditions of the north, if again isolated. Should the white man's civilization fail, the Eskimo would pass out of the picture, since he, too, has became dependent upon technology for the means whereby he lives.

The Eskimo population in Canada is not large. In 1927 the Royal Canadian Mounted Police attempted a census which gave a total population of some 6,703 at that time, while the population of Alaska was given in 1930 as 59,273, of which 28,640 were whites. Farther south in Canada, one finds a scattered fringe of Indian tribes. At war with the Eskimo long before the advent of the white man, these tribes, between the Cree Indians to the south and their enemies to the north, barely existed. Today, they are dying out, or mingling with the whites. Excluding Alaska, each individual has an average of 140 square miles of territory to roam about in. Enormous tracts of the great north are virtually uninhabited by man.

In Canada the Land of the Midnight Sun is policed by the Royal Canadian Mounted Police, with thirty-three detachments and ninety-six officers scattered over this area. The most northern post is at Bache Peninsula which is within eleven degrees of the North Pole. To assist them in their work they keep a small auxiliary schooner busy during the summer months. If then you decide to visit this country, you need not fear that you will have to go without police protection!

Wild life is far more abundant than most people imagine. The fur-bearers of the North American Continent are well represented in the north. Polar, grizzly, kodiak, brown, black, and cinnamon bears; black, red, cross, silver, blue, and white arctic foxes; otter, beaver, fisher, mink, martin, weasel or ermine, wolverine, lynx, and wildcat, all populate this area. Seal, walrus, and whale are to be found in the Arctic Ocean or in Hudson Bay. The coyote lurks in the timber lands, while his cousin, the wolf, roams all over the land and often over the frozen sea.

The herbivores also exist in great numbers. There is the moose which roams in the south during the winter and goes north for the summer. Caribou are to be found across the whole area as far east as Hudson Bay. They move in large herds that take hours to pass a given point. In the northeast is that curious throwback which seems to be a cross between a small cow and a large sheep, the ovibos or muskox.

The ovibos is a true ruminant. This little-known animal once roamed the northern parts of Europe and Asia, but is now unique to North America. It produces a coat of wool each winter equal to the fleece of any sheep. This wool, which is shed in summer, has manufacturing qualities commensurate with sheep wool, and is somewhat similar to the best cashmere. It has the added advantage that it will not shrink whether washed in hot or cold water. Although the long guard-hairs that cling to the wool have been a problem, we are told that this difficulty can be overcome.

The ovibos yields a meat that cannot be distinguished from the finest beef. The cow gives a milk as rich as the far-famed Jersey. The ovibos is tractable, gentle, and easy to handle in its native habitat, since it has no enemies but wolves and men. Here is an animal that with a few generations of proper feeding and careful breeding would supersede the imported food-animals that we use today. Once we had brought into use new hydroponic methods of raising the fodder required, the ovibos, together with the reindeer, which has been brought in from Europe and which has interbred with our own northern caribou, would supply the stock from which our meat could be obtained. The great cattle ranches of the Arctic plains may yet produce a new form of cattle indigenous to the Continent.

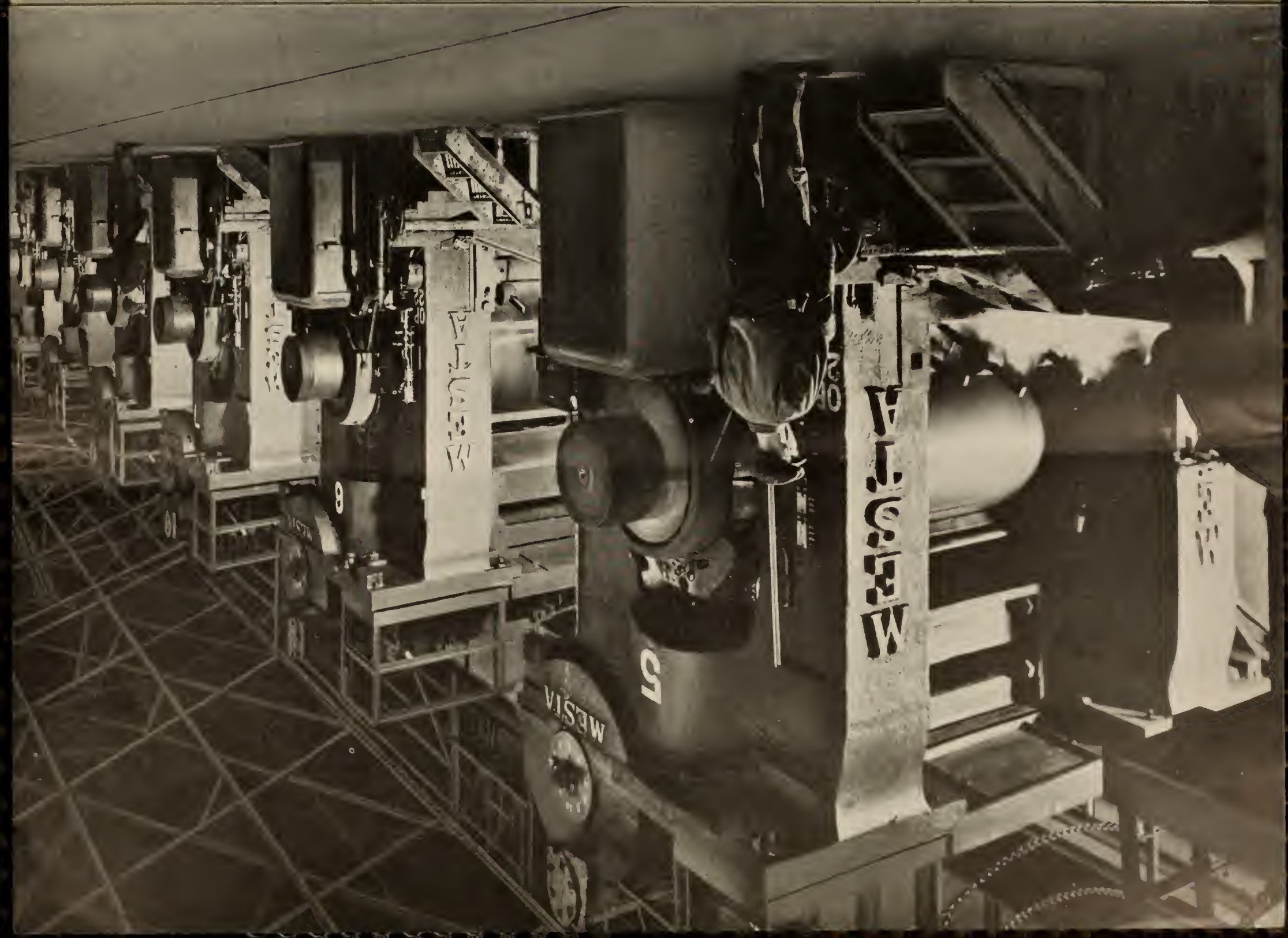
The waters of the north teem with fish. Herring, halibut, cod, salmon, lake trout, bluefish, and pike are among those to be found off the coasts or in the huge lakes. They are said to be better flavored than the same varieties farther south. That the farther away from the equator the more life there is in the waters, is well known by the biologist and naturalist.

Minerals

In minerals, the Land of the Midnight Sun is indeed well supplied. In Alaska are to be found antimony, bismuth, arsenic, chromium, iron, manganese, mercury, molybdenum, nickel, tungsten, and zinc—none of these produced to any extent as yet. Commercially Alaska is producing copper, lead, tin, and platinum, besides those comparatively useless metals, gold and silver. Of the non-metallic minerals, coal and limestone are being worked at the present time. The estimates of coal, both bituminous and lignite, run into billions of tons.

STEEL: FOUNDATION OF MODERN TECHNOLOGY

In modern steel production, electric cranes hoist huge steel slabs into the furnace. From there they are automatically removed and started through a train of mills, from which the slabs finally emerge at train-like speed in long strips to be coiled in a coiling machine for further processing. Our picture shows the finishing stands of a Mesta hot strip mill which rolls a strip ninety-six inches wide. (Mesta Machine Company Photo)


WESTINGHOUSE
WESTINGHOUSE

In addition to these are asbestos, barite, gypsum, jade, marble, petroleum, and sulphur. The petroleum areas are included in the U. S. Naval Reserve near the Endicott Range.

The Yukon is rich in copper, silver-lead-galena, coal, and of course, gold. The *Canada Year Book* states that the probable reserves of coal in the northern areas are: Yukon, 250,000,000 tons of anthracite and bituminous, 4,690,000,000 tons of lignite; Northwest Territories, 4,800,000,000 tons of lignite; and the Arctic Islands, 6,000,000,000 tons of bituminous. The quantity given officially for the Arctic islands is hardly likely to be more than a good guess.

The District of Mackenzie is now well known for its radium-uranium deposits at the east end of Great Bear Lake. Close to Fort Norman, the Imperial Oil, a subsidiary of Standard Oil, has drilled a well which supplies the north with petroleum. Copper is plentiful along the Coppermine River as well as in the vicinity of Great Bear Lake. Gold is being recovered all along the western edge of the Laurentian Shield together with platinum and showings of other metals. As yet, the search is largely confined to gold and silver, but as the areas widen and more work is done, the metallic content of these districts will be better known. Lead and zinc are now being worked just south of Great Slave Lake.

On the other side of the Laurentian Shield, at Chesterfield Inlet, a nickel-copper area is being developed. In this vicinity tin, manganese, sulphur, molybdenum, potassium salts, mica, marble, limestone, jade, and gypsum are all reported in quantities of appreciable dimensions. In Ungava, iron ore of both magnetite and hematite are stated to have been located in large deposits, while the Belcher Islands off the mouth of the Great Whale River are known to hold similar ore. Most of Ungava is as yet poorly prospected and may contain mineral deposits, especially along its western coast.

The minerals of the north will most probably be found along the western and eastern edges of the Laurentian Shield and among the islands of the Arctic Ocean. As yet, these areas have hardly been checked. Potentialities in regard to metal alloys are not known. Work is progressing slowly.

Technology Moves In

The new methods of prospecting, however, bear no relation to the old traditions. Yesterday's prospector of the north was a pioneering adventurer. He knew little of any mineral except gold. He used the primitive methods of travel and led the existence of the redman. Today's prospector cruises over a given area by airplane, and by observation chooses the likeliest spots for closer examination. He is not only used to modern technological methods of travel but is trained in his work. He uses the latest geophysical appliances and knows his minerals and chemistry. He can take proper measurements and does not make wild guesses based on the color and shape of the ore he finds. The diamond drill is used extensively and records are charted. The most likely areas for metallic ores will soon be decisively outlined and intensive search will settle once and for all the most probable content.

Every day from the airports of the northern prairies and from Ontario, whether it be summer or winter, the giant flying cruisers go winging into the north. Mining engineers, trappers, Royal Canadian Mounted Police, doctors, fire wardens, the servants of the Governor and Company of Gentlemen Adventurers into Hudson's Bay, as well as all those whose business or pleasure take them north of fifty-three, use the latest device of technology for conquering distance and setting at naught the perils of snow, ice, and frigid temperatures.

Every night the air is filled with messages over the radio waves to the lonely posts of the Land of the Midnight Sun. The conquest of the sound waves has done more to open up the north than any other act of man except the mastery of the science of flight.

Henry Hudson, Franklin and his illfated crews of the *Eurebus* and *Terror,* Ross, McClintock, Peary, Mackenzie, and all those who braved the dread Arctic nights with hand tools and primitive supplies would gaze with amazement and incredulity at the equipment of the up-to-date explorer of the frozen north. Science has done more, in the short time it has invaded the north, with little loss of life and less toil, than was accomplished by all the deaths, the grim struggles, and the stark hardships of the old pioneers.

By airline the distance from Fort McMurray on the Athabasca to Aberdeen, Scotland, is about the same as from New York to Liverpool; but the distance over the water via the Arctic is only about six hundred miles. From Aklavik at the mouth of the Mackenzie to Petrograd it is roughly 3,715 miles or very little farther than from Vancouver, B. C., to New York by train. The ideal air route to Europe lies across the northland—despite the recent failure of the Russian fliers.

Conclusion

The Land of the Midnight Sun is almost equivalent in area to the whole United States. Its climate for the most part is no more severe than that of the Middle West. Its soil is potentially fertile; its waters teem with fish; animal life abounds on its land surface. It has tremendous possibilities in the way of extraneous energy, and its great mineral content is not even known. Yet the archaic social habits of the people of this Continent and the interference of the Price System renders this land comparatively useless.

The great northland has been regarded as uninhabitable only because man cannot conquer it with the primitive methods of his forefathers. It defies the handicraft laborer and the ox-cart modes of travel. It is the land for the airplane, the caterpillar tractor, coal, electricity, steel, and advanced technology. Its problems are highly technical, requiring the knowledge of basic conditions and an understanding of material, physical facts for their solution. Its problems will never be solved by confidence, faith, hope, charity, or votes. They can and will be solved by the scientist and technician dealing with facts and applying the methodology of precision control.

Since man discovered the use of fire, he has driven back many frontiers; and with the flood-tide of technology to break down the barriers of tradition, prejudice, and habit, he soon will find that he can build a domain within the confines of the Poles themselves. The Land of the Midnight Sun awaits the Technate of the New America. When it comes, the so-called Barren Lands will fade into myth and legend, to be replaced by the great industrial north that will take its part in making this Continent the birthplace of a new race.

Power on the Farm*

By Paul S. Taylor (University of California)

THE same forces of drought, depression, and power farming which are displacing tenant farmers and laborers in the Texas Panhandle are operating in southwestern Oklahoma and the Mississippi Delta.

Southwestern Oklahoma, like Hall and Childress Counties, Texas, is part of the western dry cotton area. The beginnings of mechanization of cotton production and the portent of its effects were noted by an Oklahoman as long as seven years ago:

> Striking progress has been made in parts of the South in recent years in the mechanization of cotton production . . . The effect . . . is likely to prove even more striking in its economic and social aspects than with the agricultural production, in which the use of machinery has increased gradually over the past 50 years or more.

In 1936 another observer gave as reasons for the exodus of farm population from southwestern Oklahoma not only drought, but also mechanization in the form of tractor farming and harvesting by "sledding." The observations which follow are based on brief field reconnaissance in 1937 and examination of available statistical data on farm tractors.

The use of tractors on Oklahoma farms is increasing rapidly. Although this State was among those most severely struck by drought, the number of tractors increased 25.2 percent between 1929 and 1936, or slightly more rapidly than in the United States as a whole. Even more striking is the tremendous recent acceleration in the use of tractors. Between 1929 and 1934 the annual rate of increase averaged only 1 percent. In 1935 the rate of increase rose to 7.9 percent, and in 1936 to 9.7 percent. . . .

Tractor farming is increasing rapidly on wheat farms. Between 1929 and 1936 tractors increased 25 percent in the five leading wheat-producing counties of Oklahoma. These counties produced 43.8 percent of the winter wheat crop of the State (there is practically no spring wheat), and practically none of the cotton of the State. The invasion of wheat by the tractor is not surprising, except perhaps that it has been proceeding so rapidly during drought. . . .

A notable and significant, if extreme, instance of mechanization and labor displacement in wheat was drawn to our attention. In one of the northern wheat counties one man has purchased successively 100 quarter sections. He introduces machinery, leaves one tenant on each section, and displaces from one to three tenants.

Tractors on Cotton Farms

More astonishing than the mechanization in wheat farming is the fact that the use of tractors is now invading cotton farming even more rapidly. Between 1929 and 1936 tractors increased from 3,170 to 4,176, or 31.7 percent, in the five leading cotton-producing counties of Oklahoma. . . . In the five leading wheat-producing counties of the State, the number of tractors increased in the same time from 6,233 to 7,790, or 25.0 percent. . . .

In those crop-reporting sections of the State where wheat predominates, farm tractors increased only 13 percent. In sections where cotton predominates, with wheat second, tractors increased 40 percent.

Even very limited inquiry and observation reveal that tractor farming is displacing tenants in both cotton and wheat cultivation in Oklahoma, as it is in the Texas Panhandle. Abandonment of farm houses is a feature of the rural landscape conspicuously evident to the traveler through the southwestern quarter of Oklahoma. Here tractor farming is expanding rapidly. In explanation of house abandonment near Cache, in Comanche County it was said: "The moneyed men are renting bigger tracts from the Indians. They work them with tractors. They won't let the people live in the houses on the farms." A few miles west of Gardner on the same road, 18 families are encamped in miserable makeshift shacks or tents in one cluster, squatting on land adjoining U. S. Highway 62 and adjoining "blind" sections. All are on relief. Practically all were former renters or farm wage laborers. . . .

Cotton production has always required more labor per acre than wheat raising. The amount of human displacement caused by introduction of machinery, drought, depression, and other dislocating factors, therefore, is much greater in cotton production than in wheat raising. This largely explains the fact that . . . the farm population of the five leading cotton counties declined by 13 percent in the same period. (1930-1935.)

Tractor farming, of course, is not the only cause of heavy displacements of tenants and laborers. In Oklahoma, as in other portions of the Great Plains and adjacent stricken areas, drought, depression, and even land exhaustion are contributory causes. In the northwest corner of Carter County, near Ardmore, for example, is a strip about 10 miles wide and 40 miles long which is practically exhausted both for oil recovery and for agricultural purposes. Large numbers of families have left this area for the west coast and are still leaving. . . . As causes of displacement, drought and depression are temporary. Tractor farming and land exhaustion are final.

The Black Waxy Prairie of Texas

Power farming and its accompaniments are beginning to penetrate the Black Waxy Prairie of Texas, which is the outstanding producing section of the western part of the Cotton Belt. Observations in this area were limited to brief reconnaissance in four counties of the northern portion. Samples of the findings are presented in the following notes and quotations.

A cotton farm of 2,500 acres in Ellis County, with abandoned tenant houses, three years ago had 24 tenants. . . . In 1937 there were six tenants. . . .

* From the MONTHLY LABOR REVIEW, April, 1938, published by the U. S. Department of Labor, Bureau of Labor Statistics.

A sharecropper speaking of the vacant tenant houses in McLennan County, declared that—

> When this here depression come on, wages went down to six bits a day. The people couldn't live on it and went to town. I have 40 acres on halves, and work for the landlord driving a tractor at $1.50 a day. Most of the tractor drivers get $1.25.

An agricultural officer said:

> Two hundred farms changed hands by foreclosure or surrender of deed of trust this year in Bell County. The land went mostly to insurance companies. They try to rent it to the biggest operators they can find, mostly to men with tractors.
>
> When a man gets a tractor he doubles the size of his farm.
>
> The tenants can stay in the houses or go to town and stay on relief.
>
> One machinery man sold 100 tractors this year. He sold about half that many last year.

A tenant in Navarro County who had his own tractor, declared:

> Of course it throws a lot of people out of work. I increased my acreage from 100 to 143.

A day laborer on farm expressed himself thus:

> He (the landlord) claims its right smart cheaper to use tractors. I don't see how it can be; he can't raise his gas and oil. It's mighty hard on the tenants. . . .

Mississippi and Arkansas Deltas

In the Delta lands of Mississippi, Arkansas, and Louisiana the old plantation system survives probably more vigorously than anywhere else in the cotton belt. It is the most concentrated cotton-producing section of the deep South. About 85 percent of the farm land is operated under the plantation system. Land holdings are large, and on each 15 to 20 acres of cotton there is a tenant family. The countryside was deliberately populated densely in order that there might be available on the plantation itself enough hands to meet the peak labor requirements for pickers at harvest time. These farm families are typically Negro sharecroppers, who supply only their labor under the direction of the landlord or overseer. Landlords customarily "furnish" groceries and credit while the crop is being made, and settle with their croppers after the harvest by dividing the proceeds. This is one of the main examples of what has come to be known as "cotton tenancy."

Because of the high seasonal labor peak at the time of harvest, and the lack of mobile labor, the most careful students outside the Delta have been of the opinion that mechanization in the form of tractors and improved tillage equipment would not occur until the advent of a machine picker should eliminate the need for hand laborers in the harvest. . . .

As recently as June 1937 the same idea was repeated by the report on Technological Trends and National Policy (National Resources Committee, pp. 141, 142). . . .

The general acceptance of this belief in the resistance of the planters because of the labor pattern led us to assume that facing the problem of labor displacement by mechanization in the deep South could be postponed until a machine picker was adopted commercially. The effects of development of the row-crop, all-purpose tractor, of depression and the relief program, and of building good roads were not forseen, and under these conditions the planters' resistance is yielding readily. Already, perhaps 15 percent of the Yazoo-Mississippi Delta is farmed by tractors.

Mechanization is invading the Delta. In many parts the "1-man-1-mule" method still rules, but in the counties immediately adjacent to Greenville and Clarksdale, Miss., and in the Arkansas Delta opposite Memphis, Tenn., mechanization is already well advanced. Tractors, and 2- and 4-row planters and cultivators are making great headway and economizing man-power on the larger plantations and better lands. Check-row planting, as well as cross-plowing, on a commercial scale has begun to produce the same result, i. e., elimination of hand chopping. . . .

It is of particular significance, therefore, that a mobile labor reserve of cotton workers is developing in the towns and cities of the Mississippi and Arkansas Deltas. It is being recruited largely from families who until recently were tenants, croppers, or laborers on the plantations, but who are having the ground cut from under them. The failure of industry to absorb rural emigrants, or even to hold those who had left the farms earlier, adds to the available reserves.

Demand for labor in planting and cultivating cotton is being greatly diminished by power farming. Although the introduction of new methods in the Delta is still "spotty" and uneven in degree, the new labor pattern is clear. With the most efficient equipment—4-row machines drawn by tractors—one man can do the work of eight mules and eight Negroes following the most primitive methods (i. e., 1-man-1-mule) which are still employed on some plantations in the Delta. Besides, the tractors can be worked by drivers in shifts, and at night, to work the crop rapidly when it needs prompt attention.

The demand for hand hoers is being sharply reduced. Not only is more prompt and more frequent cultivation possible with machines, but cross-cultivation in lieu of chopping is a growing practice. Also check-row planting is now employed on a commercial scale; although not yet widely adopted, it is likely to spread steadily. One planter who check-row planted 340 acres in 1937 stated that his cotton required only one-third of the amount of hand hoeing usually necessary and yielded 430 bales. By using either of these techniques, the method of cultivating corn is approximated in cotton cultivation. . . .

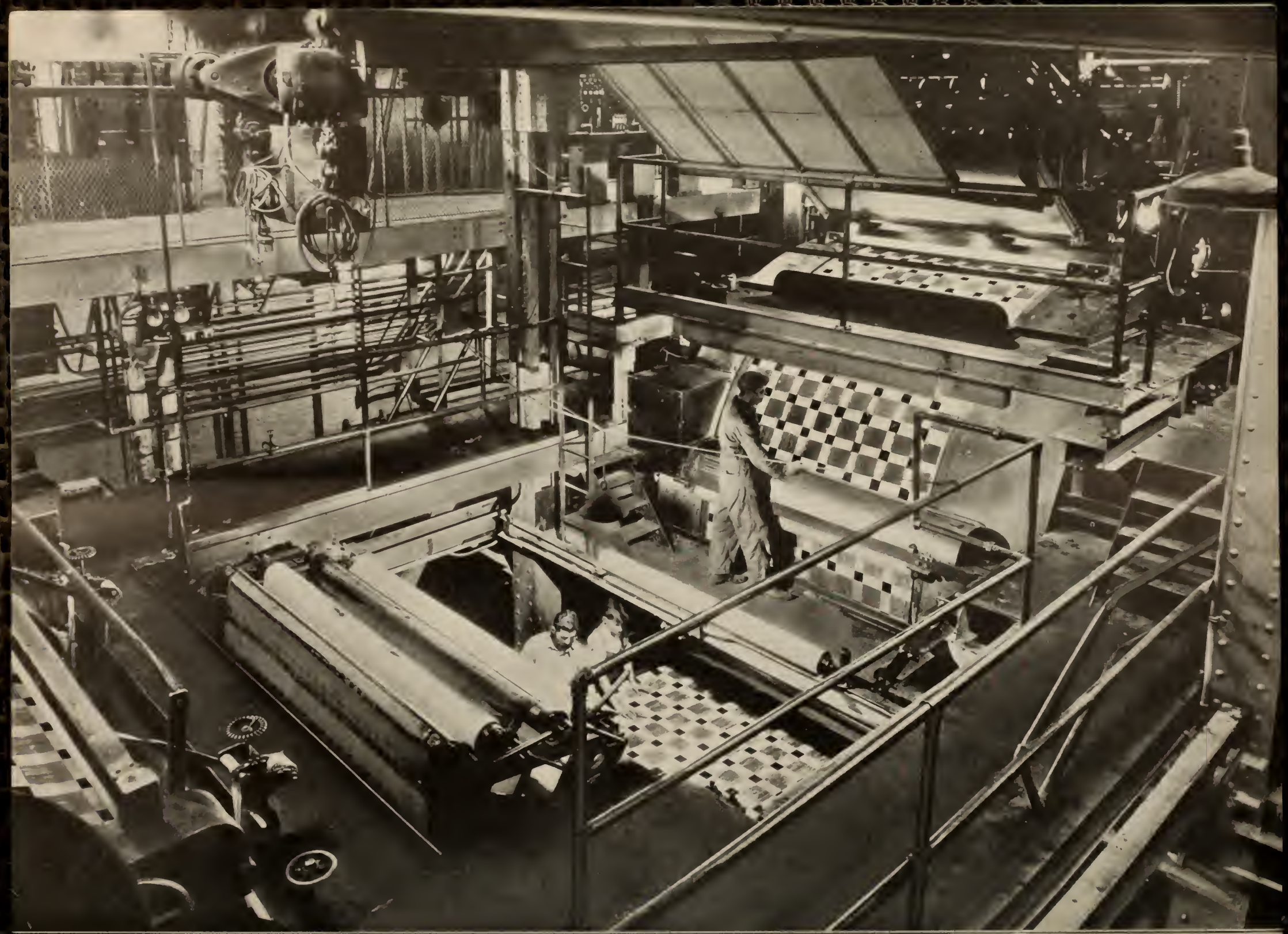
Rural Social Changes

Social changes of major import, produced by the complex causes described above, were already extensive by 1935. They are continuing now, chiefly under the impulse of mechanization.

Average size of farm in the Mississippi Delta increased 25.1 percent between 1930 and 1935. Farm population decreased 13.4 percent.

WITH A MINIMUM OF HUMAN EFFORT

Photo shows giant rotary press in the Armstrong Cork Company plant at Lancaster, Pennsylvania, which makes inlaid linoleum without the aid of a single human hand. This is the type of process which heralds the coming of the New America. The men in the picture? They are only inspecting the linoleum! (Underwood and Underwood Photo)



Declining opportunity on the farms accompanied these changes. The number of farms fell 13.2 percent. Colored operators particularly were affected adversely. While the number of white operators declined in this richest southern part of the Cotton Belt only 3.2 percent, the number of colored operators fell 15.2 percent. . . .

Exact measurement of the correlation between tractor farming and declining farm population is not possible. Factors in causation cannot be singled out, nor do time periods for which data are available coincide. . . . Tractors increased by 175 percent between 1930 and 1937, partly before 1935, but to a large extent afterward. Average size of farm increased by one-fourth, the number of farms decreased by 13.9 percent, and farm population by 10.2 percent before 1935. It is plain from observation that these trends have continued strongly since the census of 1935 was taken. . . .

Perhaps these changes should not have been so surprising to observers as they are, for since as early as 1932 experts in farm management within the Delta have specifically been urging the practices upon which they are based. Fully cognizant of the social effects which now disturb both southern and northern students of the problem from outside the Delta, these experts have officially advocated what now is a major trend, viz, mechanization, abandonment of the tenant-cropper system use of day labor, larger-scale farming, displacement of a large proportion of the labor population from the land. . . .

Conclusion

The invasion of southern cotton culture by power farming is well under way in important areas. Its progress is "spotty" but the pattern of social and economic effects which it produces is already clear. . . .

Many tenants who have tilled the land on the family-farm basis are made landless, forced by the machine into the towns, or reduced to day labor on the farms. Large numbers who have gone to the towns have fallen on relief, or even have sought refuge in distant parts. Not only is their security gone, but the opportunity even to rise to ownership is diminished, for profitable operation of mechanized farms requires more land and more capital equipment per farm.

Whites and blacks, managing share tenants and sharecroppers, alike are swept from the land. In the Texas Panhandle mainly native American white tenants are being displaced. In the Delta, the dislocation affects principally black sharecroppers in Mississippi and both blacks and whites in Arkansas. . . .

National statistics corroborate the increasing importance of tractor farming in the Cotton Belt. Sales of farm tractors in 1936 were 10.6 percent above 1929, despite the fact that sales of all types of farm equipment were still 10.7 percent below 1929. In 1936 sales of farm tractors comprised 42 percent of all farm-equipment sales in the United States, the highest proportion and the highest volume ever recorded. . . .

The relative importance of tractors on southern farms has been growing rapidly. Between 1930 and 1937, according to the best data available, the number of farm tractors increased from 12.2 percent to 18.5 percent of the national total. While tractors increased 23.7 percent in the United States, they increased 87.9 percent in the 10 southern cotton States. . . .

The fullest development of power farming can be seen in Arizona and California, which were not included in this study. Modern planting and cultivating equipment is in general use. Sharecropping is practically nonexistent. Only a few laborers are retained on the farm the year round; those work usually by the day. Hordes of mobile families, who come only for the chopping and picking, are depended on to meet the seasonal peaks. Cotton farming is characteristically on a large scale. In 1930 Arizona and California produced only 3 percent of the Nation's cotton, but in those two States were 47 percent of all the large-scale cotton farms of the country. . . .

Power farming and tillage equipment and practices which mechanize preharvest crop operations, of course, accomplish only the semimechanization of cotton production. The harvest will remain a hand operation until mechanical pickers become available on a commercial basis. When this occurs, the opportunity to use tractors in all crop operations from planting to harvest will provide added incentive, in those areas where the machine picker is practicable, to adopt power farming. If these developments are achieved, then the mobile labor reserves required by semimechanization will sustain a second shock. Their present displacement from the land will be followed by the loss of even the seasonal employment on the land which remains.

The industrialized labor pattern which is incipient in the cultivation of southern cotton has already flowered in Arizona and California. It is also well developed in the important truck and fruit crops of the West. The position of the landless, mobile, intermittently employed wage laborers of industry is increasingly approximated in important sections of agriculture. This raises the question whether the social security of these workers should not be sought through adaptation of techniques now used to bring social security to industrial labor.

Mechanization of southern cotton has National repercussions, for it is feeding the stream of distressed refugees flowing steadily west who join the mobile labor reserve of agriculture from Arizona to Washington. Except for Government agencies of relief and rehabilitation, the stream of the dislodged would now be greater. The increase of migrant refugees makes more acute an old question: How shall the burden of relief and rehabilitation of those who emigrate in distress be shared between States of origin and those of destination, and with the Federal Government?

The march of power farming in cotton raises grave questions for the South. Shall transformation of the rural structure along industrialized lines be allowed to pursue its own course? Can it be impeded or modified if we would? What of the cotton farmers and workers on lands which cannot mechanize to cheapen costs? Can farm rehabilitation on the best cotton land succeed unless it is based on the low costs of the newly-developing machine methods? What of the thousands of families already displaced from the land, their numbers growing as power farming grows? Can alternative employment be developed that would make the mechanization of agriculture serve as a base on which to build better agricultural incomes? Despite the obstacles which will retard the spread of mechanization in cotton, it is clear that the problem of human displacement in the Cotton Belt is not to be postponed to the future. It faces us now.

Adam's Rib

By George D. Koe (11353-1)

THE age of scarcity has lasted since before 8000 B. C. Ten thousand years of feminine slavery have left an indelible mark that cannot easily be eradicated—the female of the species has been forced into a condition of parasitic dependence on the male. This, nevertheless, has not always been the case and is not essential to the processes of life.

When mankind descended from his arboreal refuge and walked on the ground, it was, in all probability, the female of the species, who counselled the abandonment of the branches of the dwindling trees for the safe seclusion of a cave or a hole in the ground, where she could raise her offspring in comparative security.

At this period, man was scarce, but food was abundant. It follows that reproduction was the most important function. Value varies as scarcity. As the numbers of men increased, as the climate changed and living conditions became more difficult, the equilibrium of life was disturbed. Food became scarcer and man more abundant, until a state was reached where food was more important than reproduction. In abundance, value tends to disappear.

Though we have no clear record of the event, it is openly agreed, that in all probability it was the female of the species who founded agriculture, in order to eke out the miserable existence which would be all the male could produce from his primitive hunting and fishing. The above is borne out by the myths and folklore of primitive peoples, despite the distortions which obviously resulted from the idea that the property of fertility belonged naturally to the female.

During these early stages of mankind, matrilineal customs were probably dominant. The Iroquois and Pueblo Indians of North America, as well as some of the peoples of the Pacific Islands are examples of outlying peoples who lived for long periods of time under conditions of relative food abundance. Among them matrilineal customs are still prevalent, and descent, kinship, and succession are reckoned from the mother—a practice reserved in our so-called civilized states for the illegitimate and despised only.

In ancient Egypt, the pharaoh held his title only as a prince consort. The throne and rule of Egypt descended in the female line. For many unbroken generations, the Pharaohs raised children by their full and half sisters, thereby disproving, from an experimental viewpoint, the common belief that incest is an unnatural process. It is admittedly a crime against the customs of civilized peoples, but then so is the custom of a woman cohabiting with her deceased husband's brother.

All deities of nature were, at first, goddesses. Later in history, however, the fertility god is found in conjunction with the fertility goddess. Although this may have come about as a consequence of the primitive idea of providing the female with a mate, there was probably a more substantial reason for the phenomenon.

The phase becomes current at about the same time as matrilineal customs were giving way before the patrilineal, and the concept of property was becoming widespread. The concept of property included the slave as well as the land, the tent, the cattle, and the weapons of the individual. Women, being physically weaker, became enslaved to and the property of the stronger; a state from which they have not yet emerged.

The patrilineal concept could only endure by replacing that of the matrilineal. In this it was successful, in all but a few isolated cases as in Egypt. This condition was not the result of any philosophic opinion or anthropomorphic decision but was forced on the human race by the state of scarcity then prevalent. The necessity of a constant struggle for existence relegated to the background one of the great instincts. Osmosis and diffusion became of relatively greater importance than reproduction.

Abundance, during these last ten thousand years, has occurred only in certain limited localities and then only for the benefit of minorities. Such cults, as those of Diana of the Ephesians, the Hathor of Luxor, or the temple prostitutes of the lower deltas of the Euphrates and Nile, appear to have been due to such local conditions of abundance. In districts where scarcity and starvation were men's bedfellows, such as Tierra del Fuego and the Arabian and Saharan deserts, women maintained consistently a menial position. Even among the so-called civilized peoples, possessivity of the male and insistence on chastity for the female are far more noticeable among the poorer classes than the richer.

The kaleidoscopic change of religions during this period had no appreciable effect on this state of affairs. Even the Christian Church, after attempting to ignore reproduction entirely, owing to its belief in the near approach of the end of the world, settled down to preach the patrilineal code.

The position of women under this code was and is subservient. Until recently women were forbidden by general custom to be other than household or farm drudges. When these duties were taken over by chattel and wage slaves, their activities were confined to bearing children and amusing their lords and masters during hours of leisure. Church, children, and kitchen had to be their creed.

It follows, that under a barter system, women necessarily had no property or skill to dispose of and could offer little of value except the use of their bodies. Under the Price System which superseded the barter system, their assets were in no way increased.

The effect of this has been to divide women into two main factions. In the first of these were the women who were prepared to sell or barter the use of their bodies to only one master in return for a guarantee of subsistence for the natural span of life. The rate of payment was relatively low, though the security was correspondingly great; a condition which both the state and the church recognized so that they lent this faction their full support.

The other faction consisted of women, who were willing to sell, barter, or trade the use of their bodies to any number of masters for short and uncertain periods, re-

ceiving in return a much higher rate of remuneration but less security of tenure. Though this faction was not so fully recognized as the other by the church or the state, it was accepted by both.

The remuneration received by each of these two factions would vary relatively to conditions but a good modern analogy of the remunerative distinction between them would be that of the difference between preferred and common stock, security, in view of the prevalence of scarcity, being the dominant note.

These two factions may be likened to two trade unions in some aspects of their activities. Viewed as entities, they both strenuously support the Price System and the status quo; since they are both participants in Price System contracts. They both insist in regulating the terms of the contracts, the wages where possible, and often the conditions of work. Both, at all times, will marshal the forces of their members in disapproval of the blackleg and the scab. But no rebel, be he employer or employee, was ever treated so severely by a trade union as is the woman or the man who has transgressed the rules and thereby threatened the economic security of either of these two factions. Economic contracts are a Price System essential and contract breakers are to be correspondingly feared.

Despite the natural antipathy of one to the other, these factions recognize the economic ground on which they stand. The first faction knows that the second faction does not threaten their economic position seriously. They appreciate that this other faction fills a necessity in the lives of the younger males who as yet cannot afford a regular wife and of the older men, who have either lost some of their purchasing power or have so increased it, that they can afford to support two women, if only custom would permit them to do so. Another phase, in favor of this second faction, is that, through them the chastity and the sexual ignorance of the young girl is preserved, so that they usually reach the marriage market in a far more 'saleable condition.'

Both of them look, however, with utter disdain and bitter hatred on the woman, who so disgraces her sex and undermines its economic livelihood as to use her body at her own discretion and for her own enjoyment, without thought of trade, barter, or sale. She belongs to an even lower category than the chiseler or price-cutter.

These two factions complain that they are not as strongly supported as they could wish by the male sex. Male objections to rebels from the women's 'organizations' are, however, based on possessivity and are therefore personal and individual and do not affect males as a whole. Naturally no greater insult could be given the Price System male, than that his property should be used by someone else without his consent. Not only is his property sense outraged but the covert or open sneers of the other property owners destroy his *amour propre* and offend his ego. In such a case he can do no less than support with righteous indignation the women's factions. In this he acts as the business man does who supports the officials of the trade unions against their rebel followers—except of course in such cases as he can foresee personal glorification or profit in the opposite course.

Today, technology has forced, to some extent, the liberation of women from economic bondage, a liberation that all the agitation and moral indignation of thousands of years could not accomplish. The strictness of the old patriarchal code was weakened during the late war in Europe, as a result of the shortage of manpower. After the war women were retained in business and factory employment because they offered a source of cheap and efficient labor. Still, the vehemence with which their entry was opposed by the remaining women will be remembered and even yet a business career for a girl is only considered a source of 'pocket-money' and an opportunity to sell herself in a wider market than that of the home circle.

Is it surprising that women cling to their domestic chains and prefer their apparent security, as the pets of their masters, to a stand with their brothers and mates in the battle of life? Can one be surprised at males who resent the possibilities of loss in property rights over females that a Technate implicates?

That woman's primary function is to bear children is a fundamental fact of nature. Her physical mechanism was designed for that purpose. That she should be restricted to bearing children only to a purchaser on the market and be forced by economic dependence into slavery is a defiance of the natural laws that must inevitably bring a penalty. That penalty lies in the decadence and degradation both physical and mental of the bulk of the human race. The economic dependence of women for all these centuries has bred a canker of decay. Generation after generation of 'slave mothers' have by contact and precept raised a 'slave population,' so utterly subservient, that it is easily controlled by a set of anachronistic circumstances.

One result of the technological operation of a high-energy social mechanism will be a population of wholesome mental and physical characteristics with women having their complete freedom within the community. Under a Technate the first two great problems of life will be solved. Scarcity will disappear in the face of abundance, and the dangers of a population so deficient, that it cannot produce its own subsistence, will have vanished.

The human race no longer will need to cling to the old interference controls designed for an age of scarcity, and will free itself from the anthropomorphic forms of dominance. In a high-energy civilization it would be found no longer possible to hold new generations down to the primitive and archaic habits of the Mesopotamian and Nile Deltas. It would be forced, whether it approved or not, to change its ways, its habits, and its customs to conform to the new technology.

Those who fear that such a condition would produce an era of sexual and other orgies should be reminded that the effluvia of cesspools is common only to cesspools and that the perfume and beauty of the rose springs from the same organic compounds. Such a fear is the result of an inferiority complex arising from old Price System reflexes and is an insult to human intelligence. Woman is still, and for a long period will remain, the most important factor in all calculations concerning the field of human reproduction. As such, unless the goal of the human race is self-destruction, she must receive the recognition due this importance.

America Reacts

By Blanche Greenough (R. D. 11834-1)

IN the life of our civilization, a series of crises are occurring which will lead to a major crisis. Upon the outcome of this major crisis depends the future of North America—whether its trend will be upward or rapidly downward. The critical situation on the North American Continent today is not a result of international involvement, but is a condition generated out of a great social conflict upon the home soil. Where all other civilizations today are struggling with constricted economies of scarcity, America is struggling with an economy of abundance. Europe and Asia are in conflict with themselves and with each other, but their future should be theirs to settle as they will. America is in conflict with an age-old method of producing physical wealth—a new and fundamental conflict.

Physical operation is basic to the life of nations and financial economy is basic to the Price System which misoperates them. America, with a 95 percent ratio of the resources that constitute a complete natural economy could establish a position of independent security and abundance, were it not for the financial hierarchy that pursues a superfluous foreign trade, manipulates international finance for its own ends, and operates to maintain scarcity and interference at home. Needless to say, these ends are not consistent with Continental safety or with the requirements of technological efficiency.

The future welfare of this Continent does not require Price System adjustments of trade through 'favorable balance' and tariffs. The adjustment in foreign relationships requires methods adapted to modern *internal* requirements.

An economy freed from trans-oceanic price incentives cannot be the beginning nor the end of our Continental efforts, however. Though an important achievement, this will be but one result of a technologically operated domestic machine. Outside of the arena of old world metastasis, America commands a position favorable to this economic origination. With the broken fragments of former precedents blocking the highway of American progress, the necessity for this action places it beyond the scope of argument.

The turning-point in our physical affairs confronts us. This must engage the attention of those Americans who are capable of thinking engineeringly, because it comprises technological factors which have never before appeared during seven thousand years of historical record; and which only appear today upon this North American Continent.

Opportunity often presents itself in the guise of disaster; and if our perplexed 'statesmen' were blessed with broader vision they would see in the present pervading dissolution the abated virility of an exhausted order, and the pushing vitality of a greater one. Those who now administer national 'law' with the purpose of cementing a dissolving organism, are putting the axe to the weakened structure. We must be prepared to tend the new shoots of the future society.

It should be clear that the resource and energy conversion factors of a Continental area dictate the normal living standards of its population. These lacking, political promises can be only subterfuges. Abundantly present as these resources are in our own Continental area, no evasion, by way of a subtitled Price System scheme and persuasive slogans, has the facility to cheat the dependent population of its vital needs.

It is a common but mistaken idea that the economic confusion of the last eight years is simply an aggravated form of the old-fashioned depression, and that it will finally be amenable to business and political efforts. The factor that constitutes our American problem is one that is alien to history. It is the rapid advancement of technology into every artery of our social structure. Our increasing dependence upon technological processes for physical necessities has created an unprecedented emergency in classical economy; technologic in origin, it is economic in effect.

The series of crises referred to in the opening paragraph is not to be confused with our seven to ten year series of 'cyclic' depressions attributable to a variable economy. Nor do we face in this particular crisis, another war. Should we be foolhardy enough to divert our resources and population to this end, the responsibilities evaded would still be there to confront us.

With numerous political doctors and a crowded medicine chest, the Continental sickness refuses to yield because it is being met with price-tag formulas. Instead, owing to the now fundamental position of technology, the crux of our situation is technological and as such it demands a technological correction. This method of correction, however, will not be permitted as long as the patient is a paying one. Only when the patient finally reaches bankruptcy will the social scientist be admitted. Technology represents abundance, and price represents scarcity. Because these two cannot be in the same space at the same time, and because our present order attempts to make them, we are undergoing a series of experiences that may well furnish the histrionic tragedies and comedies of future generations.

To extend technology to social control is a task that can be accomplished only by social scientists. The classical economy, as distinctly evidenced throughout the last eight years, cannot function adequately in a Power Age. It is a crystallized component and has broken under the strain of an unbearable load. By the efforts of those who gained power and affluence in the heyday of its reign, it has been repeatedly, but precariously reinstated. The handwriting that spells the doom of decadent institutions has appeared upon our American wall. When the text becomes clear to its readers, an observer may classify the population's reaction into five general forms, which are evident even today.

Group one faces the situation hopelessly, apathetically or indifferently, resorting to an intangible hope that is based upon no definite specific.

Group two is a multi-divided, conglomerate of intellectual liberals, motivated by similar general objectives but with opposed opinions for their achievement. These resolve to gain political ascendancy. They disregard the imposing implication of a Continent equipped with a 1,600,000,000 horse-power engine, which has transformed a loosely connected agrarian civilization into a highly integrated, supersensitized mechanism, and they believe that a new line-up of the same failing methods, with a new appellation and striking slogans will set the nation back upon its keel.

The liberal cannot cut clean in the manner the new age demands, but persistently rummages in the antiquated Price System scrap heap for used parts, cracked and warped, for rusty bolts, and whatever bits are fancied,

to form the body of a 'new' ship of state. New materials crowd his environment, but he is bound securely by traditional education, and the habits of thought and action that paralleled the old order; and he can only identify himself with the world of things that have been.

In group three are the ultra-conservatives, a queer mixture today. Among them are those who would like to ape the control set up in such geographically or technologically restricted areas as Italy, Germany, and Russia—nations which despite their minor technological advances, have scarcity problems inherent in their deficiencies. The social rigidity that is fascism could not be sustained in an American environment due to the breadth and nature of our territory, to abundance, and to the high rate of flow of goods and services, which could not be controlled by any group of political operators of any stripe.

Russia labors to advance technologically but this will require time, and if by intensive development, her technology assumes our North American proportions, the 'rights of the worker' will vanish as a social incitant, along with kindred approaches to scarcity solutions. The socialism of communism and the socialism of fascism, with their security benefits based upon scarcity standards, with force, espionage, and concentration camps are too similar at too many points for fundamental distinction.

Today, republicans and democrats, conservatives and liberals (Canada), rate no special grouping, as the more conservative of them belong in the fascist classification, and the 'progressives' are liberals. It becomes very amusing. The doors of political liberalism are flung wide today, wide enough to admit the communist, who now shouts for democracy and all its attributes.

In this age, these political groups with their irregular and fluctuating social outlines, are a quaint patch-work quilt, practical only to cover the dying form of an order that is spent.

Group four is composed of those who have 'made good' financially, either in a large way or in their own small petty endeavors, and who have allowed their pecuniary success to become the sole criterion of all their efforts. Whatever, or whoever else has suffered, they have not. They have one social outlook and that is bound up in the theory of the perpetual in price and profits. Having done so well so far in their cherished endeavors they cannot divorce themselves from an exclusive economic scheme in favor of an inclusive one whereby the benefits of living will be available to all Americans.

Because of its comfortable pecuniary position, group four is afflicted with a stigmatic focus. In the field of national or Continental affairs, individuals in this group enlarge or minimize issues in accordance with the relative profit or loss, wage increase or decrease, that a definite decision may incur in respect to their particular industry. In group four we also find many who appraise the present situation partially and are fearful of the press of events. This fear has prompted them to assume insurance policies in England, Australia, and other countries, with the intention of escaping to one of them when 'things begin to happen.' While profits were good and their future unchallenged, these were our solid citizens, but when their gains are threatened their patriotism leads them to other shores.

In group five we have a distinctly different reaction: we find the potential leadership of the New America. Considering the ingress of science and technology into our civilization, it would be strange indeed if this group did not appear at this significant time. Out of the confusion of modern times have come those who have appraised the development of science, the resources of the Continent, and the means whereby man lives on the North American Continent. In the resistless approach of enveloping events, they have found their proper place.

In none of the above groups can rigid lines of demarcation be drawn. Some are torn between one reaction and another; some are liberal one day and ultra-conservative the next. Neither can those in group five be found in one group under one banner, but more and more, as they find their place, they fit naturally into the one classification that was shaped by the same events that have shaped their reaction—into the group Technocracy.

Those who have no thought of the future, who are not suffering from economic insecurity and impoverishment, from lack of medical attention, recreation, or expression; those who have not acquired a scientific outlook; who cannot discern facts; who do not understand practical operation; who do not deplore waste and inefficiency, cannot fall into the fifth classification—yet. Every individual who accepts the natural progression of physical development on this Continent, assumes the task of understanding the practical operation of physical science. In this pursuit, habits of thought that have motivated humanity from the dawn of history to the present are voluntarily discarded.

To the individual in group five, it has become clear that the end-product of technological processes—abundance—requires distribution, which cannot be accomplished by the present artifice of price. It requires another mathematic, and Technocracy has supplied him with that. The individual in group five moves in the direction of distributive control; he moves in the direction of complete utilization of materials and methods; he moves away from a financial economy—a diametric move, independent of and without resemblance to any existent or previous order of social direction.

And because group five is a growing group, under the pressure of an intensified series of crises, Technocracy which is formed out of it, is a growing group. When the major crisis arrives, group five will be swollen by those who now remain in their old classification; and under the forward acceleration of a 1,600,000,000 horsepower engine and a Continent of people, the New America will be attained. There will be no organized opposition.

Only Americans under American leadership can build the New America. We need no orders from Moscow, Berlin, or Rome. No importations of European social philosophy—communism, socialism, fascism, or any other 'ism'—should be permitted to choke American ingenuity and progress. A unique technique is required. And America has the tools and the right kind of men for this technique.

Technocracy states that the imminent social transition neither requires nor permits of revolution, but must needs proceed within the channels of a planned and orderly progression—that progression which is unique for this Continental area. A failure to accomplish this imperative demand of our advanced technology would bring chaos on the North American Continent.

Calling the Roll

—*A Record for the Future*

By Doris Robbin (CHQ)

THE year 1938 sees the Price System on the downgrade of another of its oscillations—another of the oscillations, which will increase in frequency and magnitude as a function of time; and which mark a unidirectional and irreversible progression of ill-omen to the Price System institutions whose bones are rattled so loudly these days.

One wonders what course the present leadership of the North American Continent can be expected to take this time? Let us review the situation on the basis of current, accepted determinations and past performances.

These oscillations are not the familiar 'business cycles' of the economists although their downward phases are still referred to as 'recessions' or 'depressions,' and their upward trends as 'prosperity' and even 'the triumph of democracy.' 'Faith,' 'hope,' 'charity,' and the elimination of 'fear' are still seriously recommended as cure-alls. Such procedures as extended pump-priming, balancing the budget, cooperation between business and government, and drastic legislation are yet held plausible.

The following items selected from the *Quarterly Supplement to the Review of Periodicals,* compiled at the Board of Governors of the Federal Reserve System, show the probable trends of any measures to be taken by our contemporary 'leaders,' who, it must be remembered, have had the benefit of much experience during the stormy years since 1929. All these pronouncements date during the first quarter of 1938.

January 2.
Senator McCarran (Nevada) urges free silver and gold coinage at a rate to be fixed by law.

January 2.
Winthrop W. Aldrich issues statement that he sees encouraging developments and that prompt handling of some problems will bring improvement.

January 2.
Senator La Follette, in radio address, says unemployment is the most important question facing new session of Congress; urges spending for public works.

January 2.
President Cardenas of Mexico abrogates the Morrow-Calles oil agreement and seeks new basis for future relations with U. S.

January 3.
President Roosevelt, in message to opening session of Congress, asks capital and labor to cooperate in national recovery; denounces abuses by small groups.

January 4.
President Roosevelt, at press conference, proposes modified output control; asks business to join him in controlling new industrial production.

January 4.
Chairman Eccles of the Federal Reserve, testifying before a special Senate committee investigating unemployment, lists six causes as underlying the current business slump.

January 5.
President Roosevelt, in annual budget message, asks $991,300,000 for defense, and $1,000,000,000 for relief; cites slump, world unrest.

January 5.
Metropolitan Life Insurance Company announces it is prepared to invest $100,000,000 in housing when legislation permits.

January 5.
Dr. O. M. W. Sprague, in interview, urges need of cooperation between business and Government, and positive action to boost demand for labor and materials.

January 6.
President Roosevelt has asked Joseph B. Eastman of the I. C. C. to draft legislation aiming to end the railroads' financial 'chaos.'

January 6.
William S. Knudson of General Motors tells Senate Unemployment Committee that his corporation regards the recession as temporary and is making plans for expanded operations.

January 8.
President Roosevelt, in address at Jackson Day dinner in Washington, pledges continued war against 'autocratic' business minority.

January 11.
Colonel Leonard P. Ayres tells Senate Unemployment Committee that the nations will probably feel the worst of the present business recession in the first six months of 1938.

January 12.
President Roosevelt calls fifty prominent industrialists from all parts of the country to meet with him in Washington on January 19 to discuss business revival.

January 12.
A. F. Whitney, president of the Brotherhood of Railway Trainmen, offers the Senate Unemployment Committee a 5-point program for rail rehabilitation to fight the business slump.

January 13.
President Roosevelt calls to the White House on January 14, leaders of industry, labor and finance who have been conferring for some time, to tell him of their progress.

January 13.
Senator La Follette, in a radio address, urges increased Government spending as best way to bring about a balanced budget.

January 14.
Colonel Leonard P. Ayres says overstocking by corporations late in 1936 and in the spring and summer of 1937 is one of the major causes of the recession.

January 17.
Mayor La Guardia of New York, before the Senate Unemployment Committee urges Federal Government to embark upon another major program of Government spending; also urges cooperation of business.

January 17.
National Association of Manufacturers informs President Roosevelt of the organization of a Committee on National Policy of Coordination and Cooperation, to assist the Government in efforts to combat the slump.

January 19.
President Roosevelt tells 49 members of his Business Advisory Council he plans a council to formulate a policy coordinating all interests, and receives their suggestions.

January 19.
General Motors dedicates new Detroit laboratory and factory for mass output of small, light-weight Diesel engines.

January 20.
President Roosevelt announces he will call new conference of 'small' business to discuss methods for recovery.

January 21.
President Roosevelt spurs drive against slump on 3 fronts. . . .

January 22.
Governor Earle of Pennsylvania, in address at University of Pennsylvania, says this country is faced with 10-15 more years of spending on relief or crash of the capitalist system.

January 23.
U. S. Chamber of Commerce lists wage-hour bill, taxes, and labor position as major obstacles to business revival.

January 24.
Meeting of the New York State Bankers Association expresses opposition to further artificial stimulation of business and further attempts at business reform. . . .

January 26.
Dr. Harold G. Moulton says present business recession is result primarily of the 'aggressive labor movement' which resulted in reduction of hours and rises in pay without increased efficiency of production.

January 26.
J. A. McLeod, president of the Bank of Nova Scotia, Halifax, at annual meeting, says there is good ground for believing recession in U. S. is only temporary.

January 30.
Senator Wheeler, in statement, looks for 'drastic and large-scale' legislation to end chaotic situation in nation's railroads.

So much for one month's productive effort on the part of the 'greatest' brains of the North American Continent to solve one of the gravest problems ever faced by any civilization. Can these 'pointers with pride' and 'viewers of alarm' wonder at the diminishing enthusiasm for democracy evidenced all around them? Let us continue with this record, which in a few years will be regarded with amazement by the inhabitants of the New America.

February 1.
William O. Douglas, chairman of the S. E. C., in address in Chicago, says the national financial machinery is in need of a thorough overhauling if the capitalistic system is to escape suffocation.

February 4.
Twelve representatives selected by the 'small business' conference outlined to President Roosevelt 23 steps to aid recovery.

February 6.
Brookings Institution report, by Maurice Leven, concludes there is no single remedy for improving income distribution and eliminating poverty.

February 10.
R. F. C. is clothed with ample authority to make all necessary loans to business, big and little, Chairman Jones says.

February 15.
Secretary Morgenthau tells House Appropriations Committee that the current business recession seems to have levelled off but calls unemployment situation acute.

February 18.
President Roosevelt authorizes resumption of R. F. C. business loans, especially to maintain or increase employment.

February 22.
Annual meeting of the Bank of Canada; report of the Governor urges necessity of curtailing excessive speculation.

February 24.
Robert H. Jackson, in address in New York, says Government must regulate business for the sake of the nation, to end unemployment cycles.

February 24.
John N. Biggers, director of the unemployment census, tells President Roosevelt that recession is passing; now 'scraping the bottom.'

February 28.
Bernard M. Baruch . . . sees Government more to blame for unemployment than industry.

Another month rolls by, a month during which Technocracy saw the confusion of the Price System become 'worse confounded,' and the parade of the incompetents become longer.

March 3.
Donald R. Richberg, in address in New York, urges creation of a Federal Industrial Bureau to aid business cooperation.

March 4.
Paul H. Douglas of the University of Chicago says price fixing is largely to blame for depression; urges Government to make available $1,500,000,000 in low-cost housing program. . . .

March 4.
Canadian Supreme Court unanimously rules Premier William C. Aberhart's social credit structure in Alberta Province entirely unconstitutional.

March 14.
Secretary Morgenthau, at press conference, says dollar is shock-proof, as result of the tripartite agreement, inactive gold, and Stabilization Account.

March 15.
President Roosevelt, at press conference following conference on railroads, indicates compulsory consolidations may be undertaken to solve rail problems.

March 18.
House votes $1,120,000,000 navy bill, providing for a minimum of 3,000 airplanes.

March 21.
Tabulation by Northwestern National Life Insurance Company of Minneapolis shows business of the nation now operating at the 1931 level.

March 23.
President Roosevelt, in address at Gainesville, Ga., says selfish few block nation. . . .

March 25.
Donald R. Richberg, in address to Academy of Political Science, says the U. S. will drift into disaster and dictatorship unless 'democratic cooperative controls' of all business and industry are established.

March 29.
Railroad industry is preparing a gradual bolstering of depressed competitive rates; expects to realize an additional $75,000,000 annually from advance.

March 31.
Jesse H. Jones of the R. F. C. tells United Press worst part of the business recession is in the minds of the people; impediments to better business are being eliminated and recovery should not be far away.

Let this record stand. The political machinations of democracy, and the ineptitude of business are leading to a Continental anarchy of relief, unemployment, crime, and all the concomitants. In contrast to this anarchy, this Continent possesses the materials, the brains, and the machines with which to provide every North American with the highest standard of living the world has ever known, from birth to death, with the minimum of human effort, and the maximum of leisure.

The disparity between these two situations is evident. The history of the next few years will decide the issue.

In the Field

SIX years ago this month (July, 1932) Technocracy received its first publicity. It was then a research organization with a staff of technologists, scientists, and draughtsmen engaged in conducting the Energy Survey of North America—an investigation of natural resources, energy conversion, potential power, trends of consumption, invention, and installation of machines and processes, employment, business and finance.

The publicity changed to ridicule and villification. The work kept on.

In February, 1934, the first move toward Continental expansion was made. The time was ripe to commence the construction of a disciplined organization, with a membership consisting, not only of scientists and technologists, but of persons from all walks of life. In the face of the storming persecution of the press, Howard Scott, Technocracy's originator and Director-in-Chief, undertook Technocracy's first organizational lecture tour. Technocracy was taken across the Continent to a highly curious public.

At that time Technocracy's assets consisted of data sheets, papers, charts, and statistics. It had no literature, no speakers, no teachers, no organizers, no public support, and no money. Today, it has a trained personnel; publishes twelve magazines and numerous items of literature; has a twenty-two lesson text book; has offices in all major cities and towns in Western Canada, the Pacific coast and mountain states, and in key-cities throughout the middle-west and eastern states; has organizers in large cities and in isolated areas; promotes an almost continuous succession of lecture tours; holds hundreds of study classes and dozens of public lectures weekly; and in numerous places has research staffs which carry on extensive work. The silver-and-vermilion Monad becomes increasingly evident.

Contrary to all accepted methods of organizational or corporate expansion, Technocracy has grown without initial operating capital, accumulated background of literary exposition, or emotional appeal. Technocracy has no debt; has never spent a dollar on promotion; and does not solicit funds to reduce its deficit—it has none. Technocracy always has the last laugh.

Technocracy-Grey Automobiles

On the highways of America appear new phenomena—automobiles in smooth neutral grey lacquer, with vermilion trim around the wheels, and vermilion insignia on each side and rear panel. The insignia is the mark of all Technocrats proud to proclaim to the world their membership in the Organization. Look for the grey cars with the Monad symbol, the words 'Technocracy Inc.,' and the Section and Regional Division Number.

New Sections

A chartered Section of Technocracy is regarded by the Organization as an achievement, not as a loosely-tied aggregate of sympathizers. A welcome and a salute is extended to recently chartered Sections in Cleveland and Barberton, Ohio; Glendale, Arizona; Huntington Park, El Monte, Graham and Victorville, California; Ogden, Utah; Chicago, Illinois; Detroit, Michigan; and Nanaimo, British Columbia. Our readers are invited to communicate with Technocracy Sections.

More New Organizers

Since our last report in these columns over a dozen new Organizers have received authorization.

Technocrats at Play

Quoting a letter from Section 2, R. D. 12248, East Stanwood, Washington: 'On Sunday we held a picnic on Cammano Island. There were 500 persons in attendance, including those from Canada. Director W. E. Walter gave a fine address, which was followed by a program of music, tap dancing, a skit by the Seattle Farads, and several other numbers. The sports part of the program came next—a soft ball game between the Canadians and the Americans. The Canadians won. We treated them equally when we cut the watermelon. On August 14, another Area picnic will be held. We plan to have all the painted cars form a caravan and drive through the park where many hundreds gather on Sundays. Cars without the regulation color will have neat signs. We are going steadily forward to the New America and are working to further Technocracy wherever we go. Not even when we frolic do we forget our objectives.'

From Here and There

• • • Technocracy-grey motor boats on the waters of Okanagan Lake, British Columbia, and on Lake Michigan at Chicago • Vacation lecture tours of members in Saskatchewan, Ohio, British Columbia, California, Washington • Attractive new offices for Continental Headquarters in New York • Featured Technocracy articles in St. Joseph, Missouri, and Decatur, Illinois, papers • By-line columns in San Diego, Cleveland, and Grand Prairie, Alberta, papers • Editorial comment in Miami, Florida, and in New York • Four additional pages to Vancouver's *Technocracy Digest* • Illuminated office signs and highway signs here and there • A new edition of Technocracy Study Course • Biggest growth of membership yet recorded • Thousands of stickers distributed in Huntington Park, California, by the Farads, Technocracy's youth organization, announcing: 'The Farads Are Destined to Become the Greatest Youth Organization in America!' • Twenty-eight Technocracy cars parade Vancouver and New Westminster picnic and Area meeting • Organizer G. D. Koe of Edmonton joins New York CHQ staff • A member in Puyallup, Washington, addresses State Grange Convention of representatives from twenty-eight counties and gives them all Technocracy literature •

Social Objectives

Technocracy's survey of the economic situation in North America leads to the conclusion that there is in development a process of progressive social instability, that this process will continue until the instability exceeds the limits of social tolerance, and that there then will have to be installed on the Continent a social mechanism competent to meet the needs of its people.

Technocracy finds further that the day when social operations on this Continent can be based on a method of valuation has passed, and that it is now necessary that there be applied in the social field the quantitative methods of physical science.

Technocracy, therefore, proposes that the North American Continent be operated as a self-contained functional unit under technological control. This control would operate the area under a balanced-load system of production and distribution, whereunder there would be distributed purchasing power commensurate with the resources and the continuous full-load operation of the physical equipment, with the guarantee of a high standard of living, equality of income, and economic security, at a minimum of working hours, to every adult inhabitant.

Technocracy states unequivocally that only such a social mechanism can operate with stability and endure in the face of the unidirectional and irreversible advance of this Continent's technology, use of extraneous energy, and resultant increase in potential production.

Technocracy is not a political party. It has nothing in common with communism, socialism, fascism, or any other social philosophy. It is the 'Technological Army of the New America,' an organization with a social objective formulated, officered, and staffed by North Americans as the only solution to the unique crisis facing this Continent.

Technocracy Inc. may take political action, but it would only do so when the organization is sufficiently trained, disciplined, and widespread to permit the simultaneous execution of that action in all parts of one of this Continent's principal national entities. If Technocracy Inc. takes political action it will be the last political action, as such action would be taken solely for the abolition of the Price System and its accompanying political administration, and the transition into the functional mechanism of a Technate.

At this stage, therefore, the objectives of Technocracy Inc. are first, the education of the people of North America to a realization of the conditions behind the social crisis, and second, the organization of all those willing to investigate and interest themselves into an informed, disciplined, and functionally capable body whose knowledge and ability can be called upon to prevent chaos in North America at the time, now imminent, when the Price System can no longer be made to operate.

(Front Cover) Weighing 625 tons, this cycle changer at Wilmington Receiving Station 'C' in Los Angeles is the world's largest. It is rated at 60,000 kva and will deliver either 50 or 60 cycle current. (Los Angeles Bureau of Power and Light Photo)

(Back Cover) Oil circuit breakers at Wilson Dam. This project, with an initial installation of 261,400 horsepower, adds to North America's power conversion; and while inquiries and trials go on, the power pours out. (A TVA Photo)

TECHNOCRACY

Series A, No. 13 August, 1938

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Official Literature

Pamphlets

America Must Show the Way ..... 10 cents
The Mystery of Money ..... 10 cents
Introduction to Technocracy ..... 25 cents
Science vs. Chaos ..... 10 cents
Technocracy in Plain Terms ..... 5 cents

Periodicals

Technocracy, 155 East 44th St., New York, N. Y.; 15 cents, $1.50 for 12 issues, $1.00 for 8 issues.
Technocracy Digest, 307 W. Pender St., Vancouver, B. C.; 10 cents, $1.00 for 12 issues.
Eighty-One Forty-One, 438 The Old Arcade, Cleveland, Ohio; 10 cents, $1.00 for 12 issues.
The Technocrat, 3801 Eagle Rock Blvd., Los Angeles, Calif.; 10 cents, $1.00 for 12 issues.
The Section Post, P. O. Box 1003, Portland, Oregon; 10 cents, $1.00 for 12 issues.
The Foothills Technocrat, 305 I. O. O. F. Bldg., Calgary, Alberta; 10 cents, $1.00 for 12 issues.
The Northern Technocrat, Box 371, Edmonton, Alberta; 10 cents, $1.00 for 12 issues.
Streamline Age, 339 First Avenue, Phoenix, Arizona; 15 cents, $1.50 for 12 issues.
The Southwest Corner, 964 Fifth Avenue, San Diego, Calif.; 5 cents, 50 cents for 12 issues.
Technocratic America, Technocracy Inc., Fontana, Calif.; 5 cents, 50 cents for 12 issues.
The Prairie Technocrat, 342 Main Street, Winnipeg, Manitoba; 5 cents, 50 cents for 12 issues.
The Desert Salute, Box 123, Hinkley, Calif.; Gratis.

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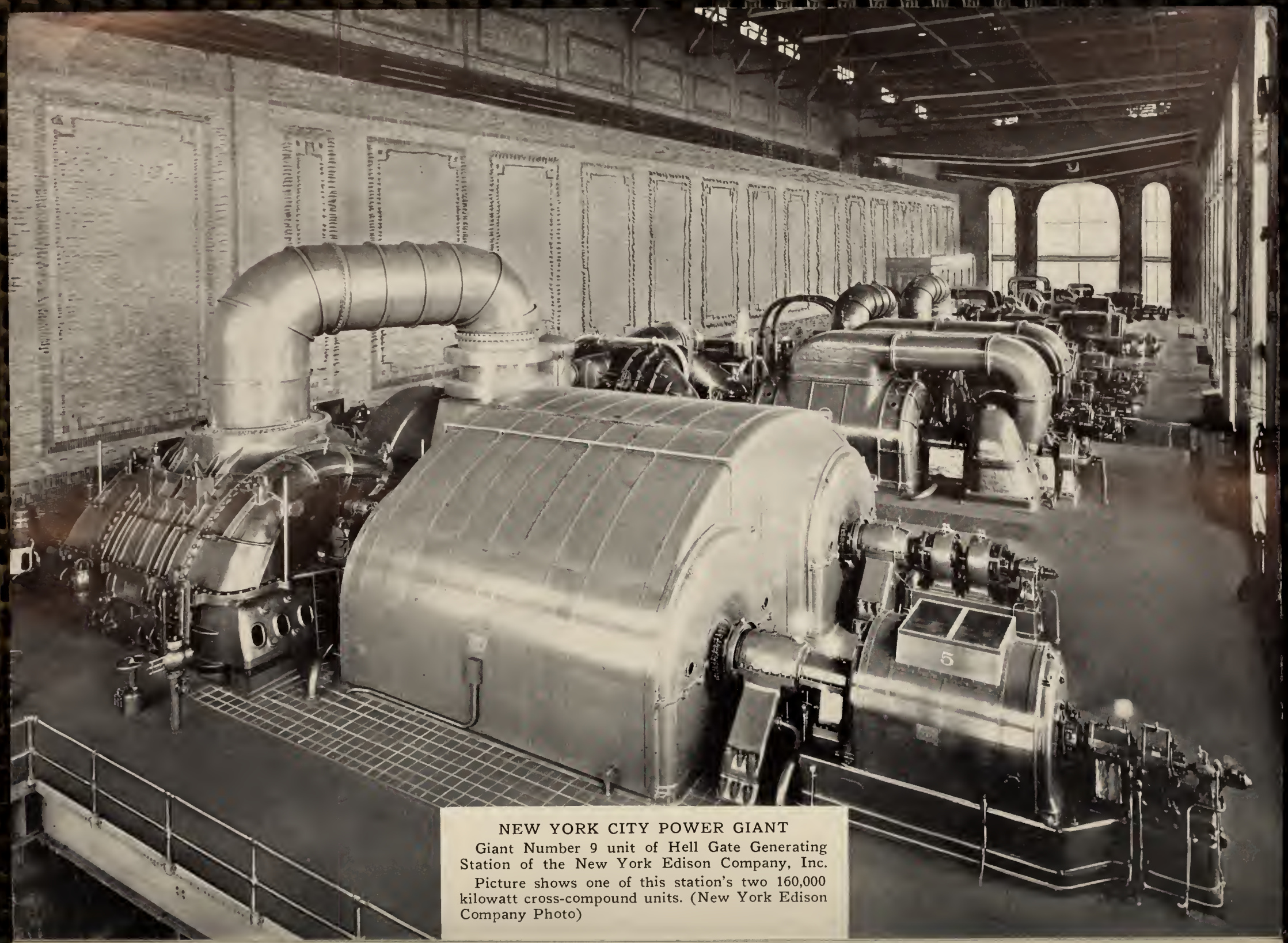
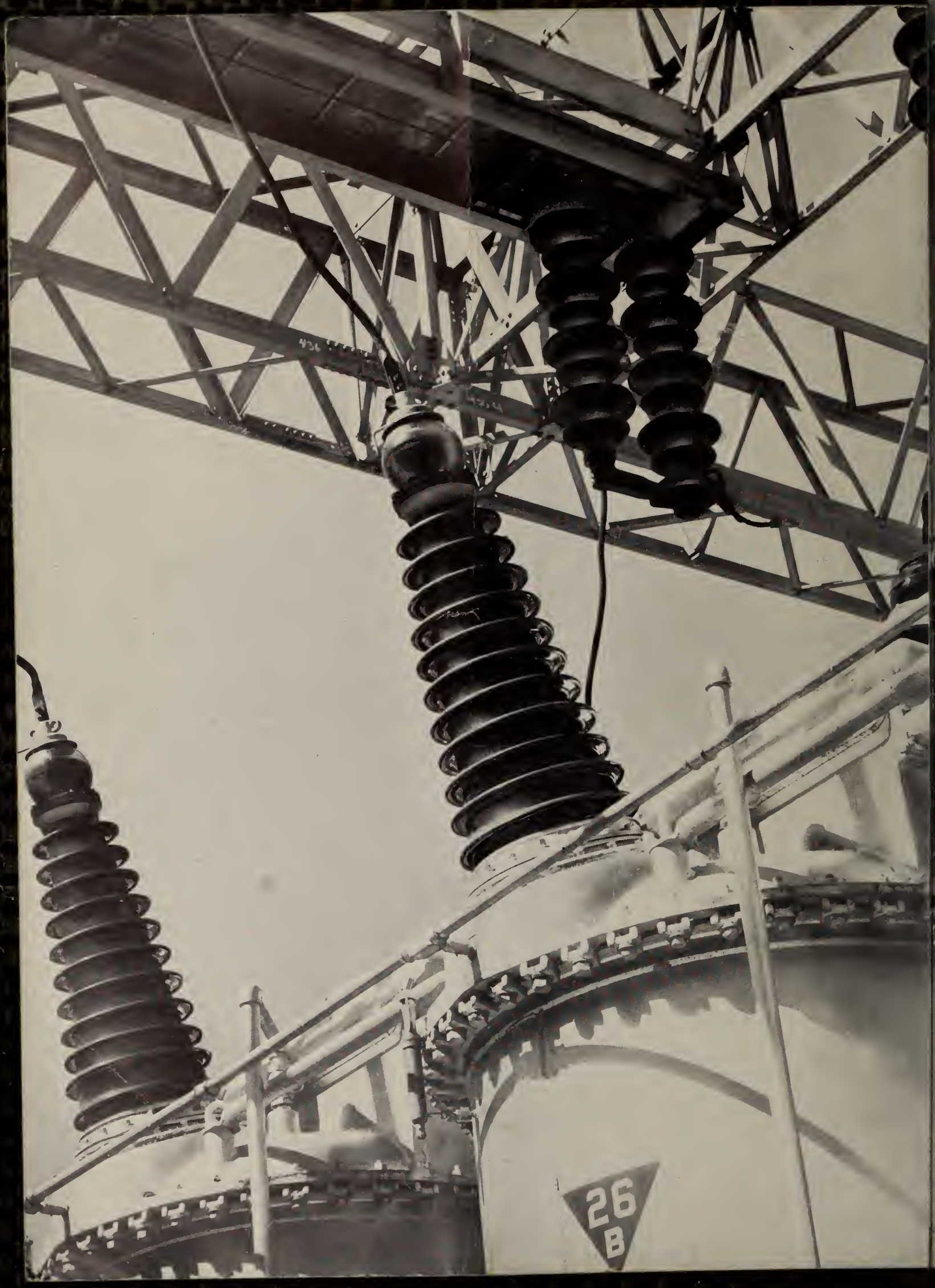


NEW YORK CITY POWER GIANT

Giant Number 9 unit of Hell Gate Generating Station of the New York Edison Company, Inc.

Picture shows one of this station's two 160,000 kilowatt cross-compound units. (New York Edison Company Photo)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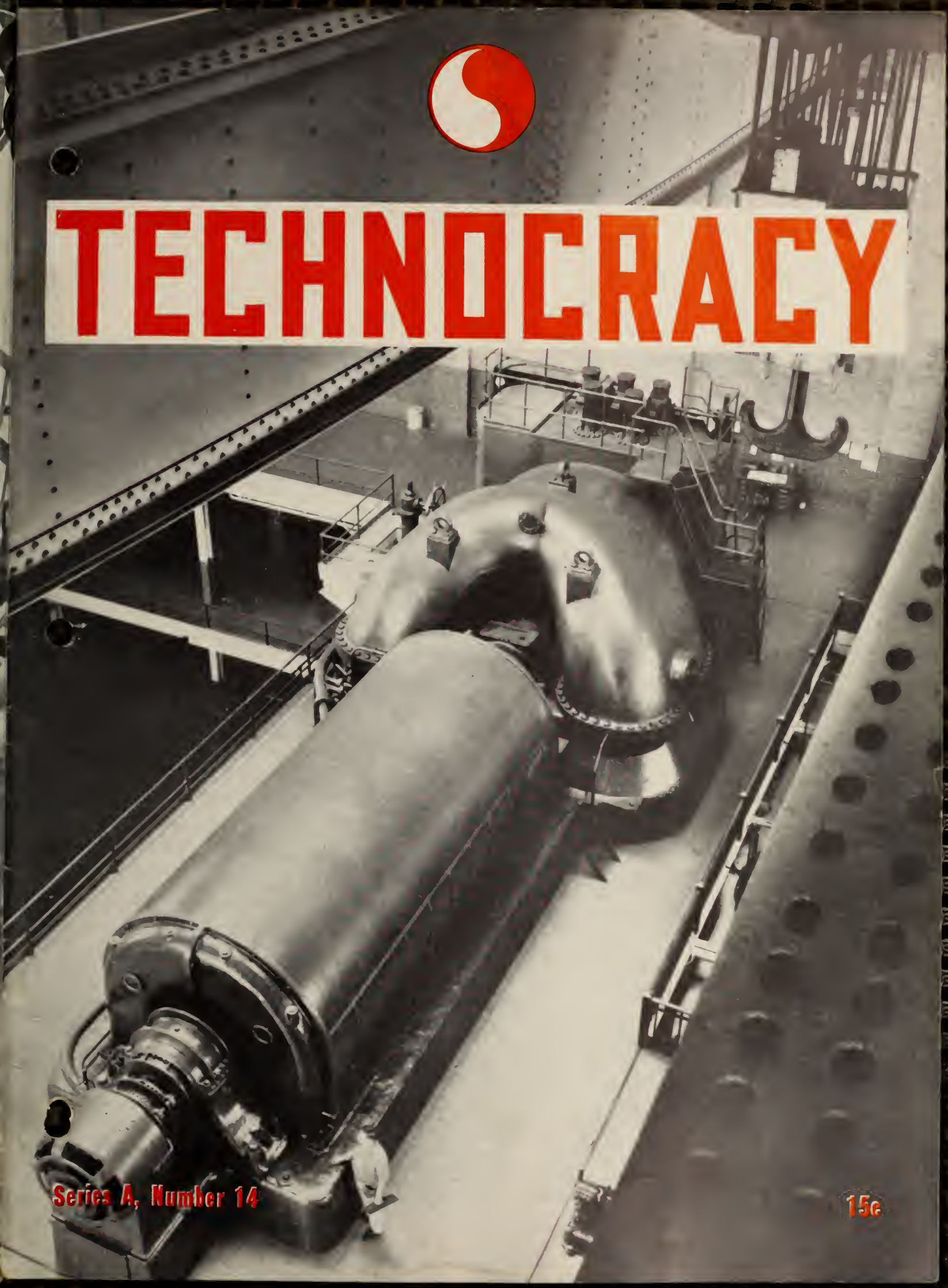

TECHNOCRACY

Series A, Number 14

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Through 55 miles of steel-framed concrete conduits like this, plus pipes and canals, one billion gallons of water daily will be brought 392 miles from the Colorado to California. This conduit is 16 feet in diameter. (Metropolitan Water District Photo)

TECHNOCRACY

The New America

OFFICIAL MAGAZINE OF TECHNOCRACY Inc.

The Dementia of Democracy

By Howard Scott

Director-in-Chief, Technocracy Inc.

WITHIN the last decade, the greatest national entity on the North American Continent, these United States, has passed from the dominance of the rip-snorting, go-getting initiative of private enterprise at the zenith of its lusty maturity, to the neuroticism of the whining decadence of its senility. Simultaneously there has occurred a similar transition in the political party machinery of this country.

Political party machines still seek the mandate of the people, but not as in the halcyon days before the great debacle. Then, they were ardent protagonists of bigger and better private business, nationally engaged in creating fictitious sham battles to kid the sucker public into casting its ballot for the right party. Today, as private business becomes more senile, national politics, possessing that keen, intuitive sense held by all paretic chiselers, has transferred its affections from private business to that last resort of muscling in on the national treasury of the United States. Tammany has taken over the Democratic Party of this country, and in doing so it has evacuated its unprofitable stamping grounds on the banks of the Hudson to impose the racket nationally from the banks of the Potomac. What a spectacle!

In 1929, business promised the country prosperity forever, without stint, without limit. The General Motors Corporation blatantly announced that there would soon be two cars in every garage, and the Republican Party and Mr. Herbert Hoover fricasseed the populace with the slogan of two chickens in every pot. Securities soared to an all-time high. Bank loans of all reporting banks (exclusive of government loans) reached their peak at 52 billion 100 million dollars on June 30, 1929. The physical volume of production topped all records, and private business in these United States was in the saddle.

In 1929, the United States was riding high in the midst of the greatest prosperity that any human society has ever privileged, fortuitously, to enjoy. Then, in the midst of the greatest social production of physical wealth, and in possession of the greatest creation of monetary wealth ever to befall the lot of any organized society, the United States, the greatest country on earth, went haywire. God's country went to the devil on wheels.

Since 1929, every mouthpiece of the government of the United States, and of national business has engaged in the difficult job of trying to pacify the people of this country with weird explanations of this country's descent into the slough of static defeatism. The press, the pulpit, the radio, and the screen have all done their part in a continual campaign of misrepresenting the physical condition of these United States. Every conceivable form of propaganda has been used as an opiate to drug the people of this country into the most vicious of all vices, a national hope—a national hope that security, prosperity, sufficient purchasing power, and a higher standard of living could be legislated into existence by the political administration of our federal government; a national hope that the mutual cooperation of national business could create a state of mind known as public confidence. Public confidence under a Price System is that state of mind desired by every chiseler, wherein the sucker public has forgotten the last time it was trimmed.

The federal administration in Washington has legislated into being every possible alphabetical combination. The country was solidly behind the Blue Eagle, but alas and alack, even that predatory bird turned out to be lousy and its carcass was thrown over the fence. National business did its damndest to get the government of the United States to take over its frozen assets.

National government and national business have had only one thought in mind: how to convince the public that every action taken by both of them was for the benefit of all. National government and national business have had only one purpose: that of bringing every possible effort into being to bolster up, at one and the same time, the national structure of political administration, and the national structure of private enterprise.

The United States has been assured vociferously by government and business that prosperity, sufficient purchasing power, and a higher standard of living could be attained within the existing political structure, and within the framework of the financial procedures of our business system; in other words, that the Price System of the United States could accomplish any and all results required by the people of the greatest country on earth.

After the Deluge

Let us look at the results. Let us read from the record. The New Deal has pumped billions of public money into the organic structure of senile business. Values were temporarily enhanced or saved by financial priming and relief payments, and national credit inflation was embarked upon on an unprecedented scale. The private philanthropists of yesterday were peanut pikers with their millions; the federal government of the United States has become the greatest philanthropist in history. National credit inflation was inaugurated in this country, not to liquidate any foreign debt, but for the magnanimous purpose of creating more national debt; for only through the creation of more debt could the outstanding debt, public and private, be validated. This simple process naturally enabled the government to borrow more, as and when it created more debt. The banks, the insurance companies, and corporate enterprise were only too glad to become the recipients of this financial salvation handed out by their government. Private enterprise was helpless. It could not create new debt claims fast enough to validate the debt structure of national business. Private enterprise willingly abandoned its role as the chief creator of debt, and gladly surrendered this prerogative to the political government of this country.

The surrender of this prerogative on the part of national business was, of course, generally understood to be only a temporary loan in a period of national emergency—that national business out of the kindness of its heart would naturally give its all in the hour of its country's need. The economic royalists of America got together with their government and proceeded to take down each other's hair, resulting in a bastard progeny that is the only miracle of today.

In the Mud of the Last Ditch

Across this country and this Continent there stumbles the most motley parade of senile convictions, asinine propositions, and idiotic proposals, costumed in the dress of the most unctious hypocrisy, and staged by the joint endeavors of business and government. What one promotes the other finances. What a pitiful and pathetic sight! How the mighty have fallen!

First in line is the New Deal of the Democratic Party leading the Tammany Tiger to a fresh kill. Franklin Delano Roosevelt, the greatest of all democrats, and the National Democratic Party proclaim their faith in democracy, private property, individual initiative, the present monetary structure, the American form of political government, the Constitution, and even in the Supreme Court with slight modifications. The Democratic Party is for more purchasing power, security to all, and the abundant life.

Next in line stumbles the decrepit elephant of the G. O. P., sclerotic, and scaly from the improper diet of foraging in the political wilderness. The poor old republican pachyderm is pulled by Glenn Frank in the kiddy-car, who hopes to revive it by liberal treatment, with Herbert Hoover doing his best pushing from the rear. The republican elephant announces to all and sundry its faith in democracy, individual initiative, the American form of political government, and the Constitution of these United States. The Republican Party is fervently against this economy of scarcity, and is out for an economy of abundance, with the slight reservation that the abundant life should be somewhat restricted to the most deserving.

The American Federation of Labor reaffirms its faith in democracy, the American form of political government, the Constitution, and the business of this country, with the proviso that there ought to be more union members paying dues, so that the A. F. of L. can have better business if national business has more business. The A. F. of L. is opposed to the C. I. O., and to communism. It is in favor of having more jobs at more pay.

The Committee for Industrial Organization comes forth for democracy, the American form of political government, the Constitution, and national business. The C. I. O. is opposed to the A. F. of L., the Republican Party, and fascism. It is in favor of shorter hours, more pay, and the abundant life, to be obtained by having more union members paying more dues through having more jobs at more pay, as and when national business has more business.

The National Association of Manufacturers takes its stand in defense of democracy, the Constitution, the American form of political government, and the abundant life. It advocates greater production, and the putting of all Americans to work into one happy family of capital, labor, and government. It is in favor of higher wages when business is better, private initiative, and the operation of these United States by business enterprise without the interference of the federal government. The federal government should aid, and not hinder, the quest of the National Association of Manufacturers in pursuit of the Golden Fleece of the great American sucker. The National Association of Manufacturers is opposed to any form of control not devised by it. It is opposed to communism, and at times, to the C. I. O., and the A. F. of L.

The United States Chamber of Commerce is out in staunch defense of democracy, the Constitution of the United States, and the American form of political government. It opposes shorter hours and more pay. It is for the abundant life, but only for those deserving business men who succeed. It is opposed to communism, the C. I. O., and at times to the A. F. of L. The United States Chamber of Commerce promulgates the unique idiocy in this Power Age, that only the business men of these United States have sufficient moral stamina and brains to operate our national economy. The United States Chamber of Commerce is the hierarchy of national chiseling.

The National Progressive Party, sired by Phil La Follette, and damned by Wisconsin liberal progressivism, proclaims its opposition to communism and fascism, and to the Republican and Democratic Parties. The National Progressive Party stands four-square in defense of

democracy, the Constitution, the American form of political government, and of private enterprise. The National Progressive Party is opposed to an economy of scarcity, and proposes to obtain the abundant life for every American by giving every citizen the opportunity to earn his living by the sweat of his brow. The National Progressive Party of Wisconsin has somewhat greater frankness, if one may say so, than the other paraders across the national scene, for it has openly symbolized its movement with its emblem of the circle and the double-cross. This is a candid distinction from the republican pachyderm and the democratic jackass, but no difference.

The German-American Bund is out in fervent defense of the Stars and Stripes, democracy, the Constitution, the American form of political government, private initiative, and better business. It is opposed to Jews, communists, and all un-American activities. It too, favors an abundant life and honest toil, as long as all additions are stamped with the approval of the swastika.

The Communist Party of the United States is out in defense of democracy, the Constitution, the American form of political government, and 100 percent Americanism. It is opposed to fascism, the economic royalists, the capitalists, the United States Chamber of Commerce, and the National Association of Manufacturers. It is in favor of more jobs for the worker at more pay, in short, the more abundant life, the American way with more work by more people. It believes in honest toil, and it symbolizes the sweat of toil by the hammer and the sickle, tools of a by-gone, hand-tool age.

Never before in the history of this country has there developed such a catholicity of taste by the paraders of our national scene. The statesmanship of our national life has fallen to its lowest ebb, for here at last we find the Democratic Party, the Republican Party, the American Federation of Labor, the C. I. O., the National Association of Manufacturers, the United States Chamber of Commerce, the National Progressive Party, the nazis of the German-American Bund, and the Communist Party, all out in support of the same fundamental proposition, that the status quo of democracy, the Constitution, the American form of political government, of better business, and more work will ultimately produce an era of abundance through the medium of more human toil.

The Failure of Government and Business

In the ninth year of their greatest economic debacle the United States and Canada are in a more precarious and hazardous social position than ever heretofore known. In spite of all the skill, ingenuity, and legerdemain of national government and national business, failure stares them in the face. Our national governments in Ottawa and Washington have failed to employ the unemployed; they have failed miserably in the attempt to increase the production of physical wealth; they have failed to provide security for their citizens; and they have made a total failure of raising the standard of living of their peoples.

The governments of the United States and Canada have succeeded in creating more unemployed, and they have succeeded in putting more human beings on relief. National governments and business have succeeded in creating more monetary wealth. Our governments have succeeded in collecting more taxes, and they have succeeded in creating more government debt, but the greatest success they have achieved has been their accomplishment of perpetuating the social syphilis of business across this Continent.

Business is the organized merchandising of goods and services under the Price System to the general citizenry and institutions, in exchange for tokens of monetary value. Business has to be paid its price, imperative under any Price System, but in order for business to collect its price, the citizenry of this country and Canada must obtain that price or business will not be maintained.

The purchasing power of the United States and Canada, distributed to the general public, results almost wholly from the sale of the individual citizen's man hours for salaries and wages. As long as our national government and national business in the United States and Canada were operating an expanding economy they were always able to cover last year's mistakes with this year's expansion. But modern technology now strides across America pervading the means whereby we live, introducing to this Continent, for the first time in the history of man, the technological process of producing physical wealth.

The technological production of physical wealth is the first change of social process that has occurred in the life of man. Hitherto, physical wealth could only be produced by human toil. Human toil has been organized down the centuries for the production of physical wealth. All the genius, all the brains and intelligence of man's social history has not been able to alter the rate of doing work by the human engine. This fact alone has damned every human society to scarcity until here and now in this America.

The America of here and now, this Continent from the Panama to the Pole, has no more geographical frontiers. Its economy no longer expands. No longer does the United States produce 1,800,000 new customers for business every year. No longer have we new land for the pioneer to break. This country's and this Continent's population growth is levelling off. Industry no longer expands in spite of its terrific endowment of scientific and technological research, despite the ghastly mouthings of the Ketterings, Millikans, and Comptons, the bastard offspring of business and science.

Political government and national business have made a hell of a mess of God's country. National leadership in Canada and the United States has signally failed to increase the standard of living, but it has succeeded in creating the lowest survival subsistence for more millions of human beings than any previous leadership in the history of the Continent. These Pharisees of national leadership have sold America down the river, and they have profited from the social syphilis of this Continent to such an extent that in this land of the free and the home of the brave, 280,000 families in the United States, in the highest income brackets receive in one year the same income as 13 million other American families in the lowest income brackets.

From Technology to Political Bankruptcy

The technological production of physical wealth results industrially in an ever increasing productivity per producing unit, and in less employment per unit pro-

duced, with less and less purchasing power to distribute nationally as salaries and wages. The technological production of physical wealth has brought about the fastest capital payoff in history, namely, that capital investment in the latest technological equipment can now be amortized out in 30 months of full load operation, instead of in 60 years. It naturally follows that this terrific increase in the rate of financial investment amortization, due to the increasing productivity of technological processes, will bring about the end product of increasing liquidity, tending to force the interest rates finally to zero.

This brings the social paradox: that when more physical wealth is produced in the United States by technological production, less and less Americans will be required to produce it. A continuum of this process nationally will mean that more Americans will be on relief than will be required to produce the physical wealth of the country.

The federal government of the United States is a confederation of 48 sovereign powers—the states. These 48 sovereign powers are structurally founded upon the stability of the county and municipal framework. The county and municipality are the very basis of government in the United States and Canada. Upon the stability of their structures, federal government is vitally dependent. That which destroys these fundamental components of local political government will eventually bring down the entire structure, even if there were no other contributing factors. Nearly 100 of the larger cities of the United States have reached their limit of debt creation. Their financial condition is painful.

The stability of county and municipal government is dependent upon the assessing of possessed values in their respective areas. So long as the total of assessed values is increasing, just so long will there be an increase in the potential taxable income of the county or municipality. In order to produce more county and municipal income, not only must existing possessed values be validated, but the total possessed values must continue to increase.

The technological production of physical wealth in its increasing efficiency is attaining ever higher speeds, lighter weights, less floor space, and fewer employees. When the Wright brothers made their first flight from Kitty Hawk, their engine weighed 16 pounds 10 ounces per horsepower; the modern, aeronautical racing engine today, weighs 10 ounces per horsepower. The first five-horsepower motors at the start of this century weighed 2,000 pounds; the far more efficient and better five-horsepower motor of today weighs a little over 100 pounds. 'Disturbing!' You will say. Yes, but the famous Corliss Centennial engine at the Philadelphia Centennial in 1876, the most powerful prime mover of its time and for more than a generation afterwards, was several stories in height and weighed 607 tons, or 867 pounds per developed horsepower. Today, a 1,000 kw. turbine, no larger than your refrigerator, weighs only five ounces per kw. We replace the 50,000 kw. turbo generator unit of yesterday with a 165,000 kw. unit in the same space, and have boiler room to spare!

The modern, high-speed, straight-line, continuous process replaces the old batch process. For the same unit output it occupies less plant space and less urban area. County and municipal possessed values are dependent upon profitable use. Modern technology requires less land area, and less plant space to produce more physical wealth. It therefore follows that in any large urban center which is non-expanding, the industrial area subject to assessed valuation will tend to decline inversely to the input of extraneous energy per thousand cubic feet of plant space.

This means more and greater city deficits. Legislation will be passed to raise the limit of city debt to higher levels. But this will be only a passing phase, for revenues from possessed values will tend to decline in the ratio stated previously, and recourse will therefore have to be taken to transfer the taxation from possessed values to assessments on exchange values, resulting in a direct decrease of local purchasing power wherever instituted.

Over 25 billion dollars of municipal, county, and state securities are held by our banks, life insurance companies, endowed universities, and philanthropic foundations. As modern technology devaluates an increasing portion of municipal and county areas, there will be a closer approach to county, municipal, and eventually state bankruptcy. Poor Ottawa! Poor Washington! They suffer from the creeping paralysis of their political paresis.

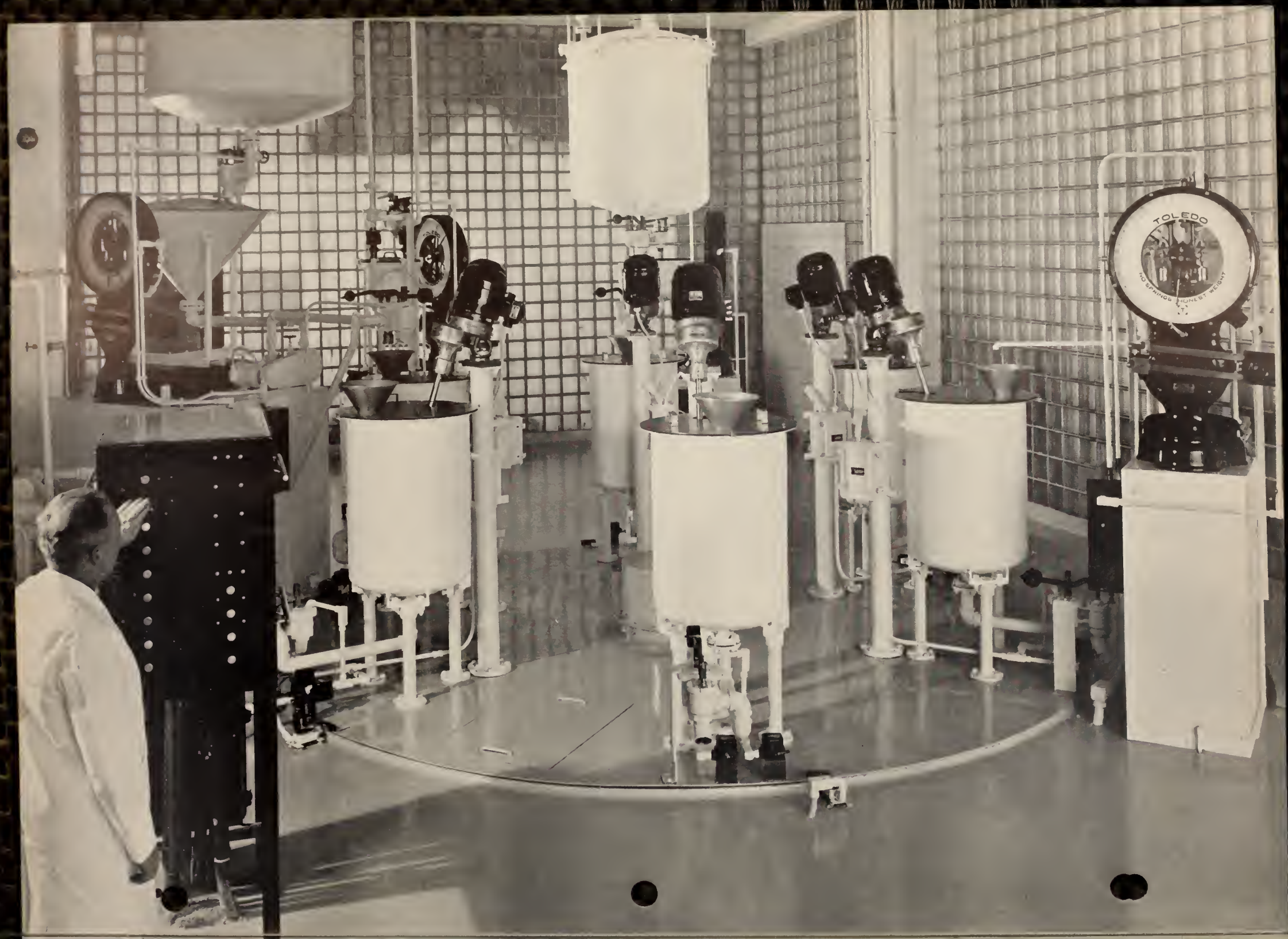
A Bill of Indictment

Our so called leaders in science are but the 'fuller brush men' for national business; the political leaders of America today are but public stooges for national business; and the leadership of business in this country and this Continent is senile. The past nine years of economic debacle on this Continent has brought forth the greatest demonstration in social futility. Every move instigated by the leadership of government and business has led, not toward a solution of the economic problems of this country, but to further advances toward Continental anarchy. The structure of government and business is entirely devoid of the competent leadership capable of providing the solution to the operational problem of Continental America. The leadership of political government and business is moronic at the top, vicious in the middle, and rotten at the bottom.

Continued on Page 21

PUSH BUTTON CONTROL

This plant, operated by the Campana Corporation at Batavia, Illinois, has attained completely automatic production. In manufacturing its hand lotion and cleansing cream, the only hand operation is performed by the perfume chemist who blends the essential oils prior to the actual manufacturing process. From then on the manufacturing is completely automatic once it has been started by the operator, who does all of the production work by pressing the series of buttons in consecutive order. The plant, only a part of which is shown, is electrically controlled and interlocked throughout, so that production on all floors is automatically controlled, and when once started must follow through each step to completion. It is impossible for any mistake to occur even should the wrong button be pressed. (Campana Sales Company Photo)


TOLEDO
NO SPRINGS HONEST WEIGHT

The Elimination of Leisure

By G. D. Koe (CHQ)

LEISURE, in all the ages past, has been regarded as the due recompense for toil. After the brethren have labored let them be called to refreshment and ease. Leisure is described in the standard dictionaries as freedom from occupation and employment, or as vacant time. Leisure has thus become the antonym for human labor. As such, it has come to be accepted as the crowning guerdon which culminates the zenith of the years of arduous travail.

The question of what is to be done with the envisaged mass leisure, implied in the continual and the increasing use of the machine, is one that keeps awake at nights those who seek to palliate the evils of our present social conventions. The awesome catastrophes that in their befuddled opinions await the human race under such conditions as appear to be arising, affright them. They seek, with feverish haste, new ideas and fresh variations of the old methods, that will somehow maintain the human beings of this Continent free from the insidious dangers of copious leisure. They tremble and shudder at the very thought of the mischief that the Evil One may find for so many idle hands.

The philosophers of the bygone days have disagreed as to whether man fell from his high estate or merely failed to climb to that dizzy elevation. They were, however, agreed that the sole path by which he could reach the high moral state that was rightfully his could be travelled only by strenuous physical labor, coupled with a strict avoidance of all forms of pleasurable activity and an equally strict observance of the peculiar habits, manners and customs enjoined by the philosopher and meticulously labeled 'divine guidance.'

As manual labor is of the essence of scarcity and as scarcity was omnipresent in the world as the philosophers knew it, they dogmatically asserted the belief, that idleness or cessation from physical labor was sure to breed the most shockingly degenerate habits—that is, of course, for all those born to human toil, for apparently the holders of vested interests were exempt. So sure of this were they, that the dogma of the teachings they engendered and the curriculums of the schools they dominated were all directed toward the wonderful efficacy of human toil to produce 'absolute goodness.' It is to be specifically noted that no philosopher is reported as having taken a dose of his own medicine, as in general, the philosophers belonged to the most leisured of the leisure classes.

Their quaint and animistic superstition of the 'value' of work remains with us today. The really smart chiselers of the past, who had been astute enough to acquire sufficient of the spoils of scarcity to emancipate themselves from human toil, were aware that this morality of work was just plain baloney. These chiselers were, however, far too crafty in their Machiavellism to let this become commonly known. It would have been the quintessence of stupidity to have killed the goose that laid the golden eggs. Manual labor was essential in that era of scarcity for the production of even a partial sufficiency. The supply of suckers, who believed wholeheartedly in the 'value' of work, was never at any time too great.

When human labor was the sole means of producing any and all goods and services, it was essential to the continued existence of the human race that the process of applying human energy to production should provide leisure only for the few. The great majority started to labor at a very early age. The hours of labor were from dawn to dusk. For the endless tasks to be accomplished by the slow processes of handicraft the daylight hours were all too few. Yet, without extraneous energy, it was impracticable to work once the sun had set; so the human being emulated the chicken and retired to roost when night fell.

The pleasurable sensations of the human toiler of these days were centered round the practices of sleeping, eating, drinking and propagating his species. All the customs, folklore, and traditions of that agelong period revolved around those forms of enjoyment mingled and redolent with the heavy odor of unwashed, exhausted, and toil-worn human beings. The end of human labor only came when the individual was incapable of continued exertion. This last stage was normally a state of physical exhaustion, usually followed by an early demise. Leisure, even such leisure as we know today, was unknown to the great majority of the populace only a few decades back in history.

The ritual of work for uplift's sake will be found embodied in the folklore of the eighteenth and nineteenth centuries. The laborer was becoming restive and insurgent. The use of extraneous energy was already affecting the habits of the people. A new concept of the morality of work was in demand. This was inherent in the philosophic concepts of equality and the rights of man that were engrossing the minds of the leisured thinkers. The realization that the machine could eliminate human toil was becoming evident to a small degree. Work for work's sake was losing its efficacy and failing in consequence to maintain the supply of willing laborers.

To preserve the ancient customs and to ensure a continuous flow of human labor into the marts of the producing countries, the doctrine of the 'value' of human labor in raising the spiritual level of mankind was elevated to the position of authoritarian dogma. Work, from being merely a necessity, was promoted to being a virtue. Leisure was for those who earned the crown of that virtue, as is evidenced by the literature of that period which extolled those who had succeeded in amassing monetary wealth by 'unremitting toil.' Every ploughboy

could become president if only he devoted his entire life to unceasing human effort. The guerdon of that labor would be the privilege of leisure; the just reward for the arduous years gone by.

Superior Leisure

The ancient Euro-Asiatic custom of hereditary descent and inheritance gave to the sons, daughters, and lineal offspring of these heroes of ceaseless travail, the same rights and privileges that their fathers had. They too were deemed fit to wear the crown bestowed by the goddess of human sweat. Leisure was thus held to be the prerogative of those who had arrogated a position of superiority to themselves on account of the debts that were owed to them. Expanding production of goods due to the new uses of extraneous energy produced a new crop of leisured people. This was in accord with the best Greek tradition, since the culture of Athens was founded on the leisure of a few slave owners. The Greek production of goods had been small, hence the leisured group was small too. The new production of the so-called civilized countries was large and the leisured groups were correspondingly large. Despite the entry of the extraneous energy derived from coal, the wonderful sagacity of the Greek philosophers appeared to be upheld.

The leisured few, in their moronity and their ignorance, have always misused such vacant time as they have possessed. They have, however, held that leisure was too precious a gift to be bestowed on the common herd. If their superiority found it difficult to handle their leisure, they were sure that that difficulty would be overwhelming for those who had not reached the sublime heights of culture. This fear of mass idleness is still evident in the utterances of the educated ignoramuses and the cultured apes that pontifically dictate to the people of today. Leisure to them has always been a means of displaying pecuniary wealth or of maintaining their so-called intellectual superiority. They are, however, correct in the assumption that leisure of the Price System order is essentially the privilege of the vested interests. It is the skunk-lily of civilization—beautiful when viewed from a distance but offensive and repellent when physically contacted.

There is no program of adult or even adolescent leisure that is not exploited to the full for the benefit of the Price System. There are no dancehalls, ball parks, movies, theatres, nor any places of amusement or entertainment, that are *not* operated for the purpose of a greater transfer of debt certificates, or so as to ensure a profitable return on investment, that can exist under the system. Each and every one of them is a centre for the sale of some product or service. Even those which are ostensibly devoted to physical or mental culture fall into the same category.

The employment of leisure hours today is largely a matter of what one can afford. Despite this, even those who can afford anything and everything, find therein little more than boredom, in which lechery, insobriety, and sensual debauchery figure largely. The columns of the press will confirm this statement. It must be hard for a Price System mind to conceive of any people having much leisure without at the same time conjuring up the picture of a vast industry of the familiar corporation type catering for the public and supervising where, how, and when they shall play. It must be equally hard for such an individual to imagine what forms of amusement could fill such leisure hours, knowing the pastimes of the leisured classes, it is not surprising that the usual conclusion is that a state of licentiousness would be inevitable.

It is this very leisure of the majority holders of the debt claims of the Price System that is so sought after by the radical, the socialist, and the communist. They neither envy nor despise the leisured classes; they seek to emulate them. The records of the daily press, once more, will bear evidence that the successful achievement of that leisure by the leaders of the left wing political groups has produced an almost similar boredom to that enjoyed by the opulent. The failure of this leisure to bring anything but the nausea of satiety, the revulsion of repletion, and the despondency of the phobist is self evident. Yet, despite this evidence, the proletariat clamor for the divine right to commit hari-kari.

This division of the spoils of scarcity is but a delusion and a dementia. The rape of the few rags that cover the nakedness of the so-called, self-styled rich should leave us indifferent and unconcerned once we realize the principles of an era of abundance. The moronity, the stupidity, and the want of originality in the occupations of lesiure as displayed by those who possess it today, should be a warning to us that the crock of gold at the rainbow's foot is but a myth, a dream. Must we throw aside the substance of reality to grasp vainly at the shadow of a shadow? What is this leisure of the past that we should seek to share it?

It is but the few hours in which those who have been thrust into the seats of opulence by the pressure of fortuitous circumstance seek to avoid the mortification of their thralldom. It is but a momentary escape from human toil and can exist only on the basis of that toil. There is no leisure, except that which is derived from the perspiration, the degradation, and the vitiation engendered by physical exertion for the purposes of producing the means whereby we live.

It is this growing failure of the morality of work and its concomitant leisure that has produced the present state of pessimism, the concept of the utter futility of human endeavour, and the solemn morbid stupidity that constitutes the culture of today. The dilettantes, the virtuosos, and the critics have lost their sense of humor. They have forgotten their childhood and lost the very knowledge of how to play. The hopelessness of the attempts to utilize what leisure there is strikes a deep note of despondency and ill-omened gloom that pervades and is echoed by the literature of the present.

The decline of all western civilization is the theme song of these exponents of this cultural leisure of the moment. They have missed the path of progression, they have become bewildered in a dark and gloomy forest of their own creation, and are counselling suicide as the sole release from demons their bemused thoughts have conjured around them. The anthropomorphic ideologies and the derived concepts have such a strong hold on them that they cannot find a way to escape the Laocoonian coils. Fear of the unknown forces them to prefer the stagnation of inertia.

Neither Do They Spin

Technological advancement on this Continent has been so great that the situation in regard to the necessity for manual labor has completely changed. We no longer find ourselves in a position where human toil is offset to some

small degree by leisure hours. We have arrived at a point wherein, no matter what we do, human toil is passing from the scene. A condition has arisen in which the need for human toil as a means of making a livelihood is fast becoming an anachronism.

Every day, the list of these who toil no more is becoming greater and greater. Like Solomon in all his glory, and the lilies of the field: the millions who have been engulfed by the relief rolls toil not, neither do they spin. The assumption that work is a sacred virtue, and that without physical labor or human toil the individual becomes derelict, degraded, debased, and demoralized, is being proved by empirical observation to be utterly false and unfounded.

Labor is no longer scarce. It has become so abundant as to be almost unsaleable. The leisure of the unemployed has created a new problem which the old philosophies cannot solve. This problem has created a new crop of despondency howlers, a new galaxy of the prophets of doom. Everywhere is evident the failure to grasp the fundamentals of the new life that are all about us. The editorial writers, the columnists, and the economists cling dismally to the wreckage of the old life that was. They are but graveyard ghouls moaning and mourning for the mouldered remains that lie in the dimming past.

The dogma of the morality of work has convinced many of those on relief that they are indeed lost souls. The failure of the concept of leisure to provide any escape from this fear has rendered the outlook of the recipient of Continental charity one of utter hopelessness. This hopeless outlook is reflected in the viewpoint and the opinions of the philosophic leaders who vainly attempt to direct and control our Continental destinies. This hopelessness is to be seen in the frenzied efforts, the volte-face changes, the kaleidoscopic twists of tactical fronts, and in the abandonment or reinstatement of innumerable efforts to make the unworkable work, or to produce perpetual motion in the first degree.

The unemployed in their leisure are now beginning to claim that which has never been considered the duty of any government. Till now, the governments have felt that their duty towards the individual citizen has been satisfied when they established the general thesis that all citizens were entitled to chisel to their hearts content, provided the sacred principle of ownership was maintained inviolate. The unemployed are solidly refusing to accept this thesis. They are claiming, with increasing vehemence, that it is the duty of the government to guarantee each and every individual citizen food, clothing, shelter, and at least the rudiments of amusement and recreation. This concept of social security from the cradle to the grave is new and virgin. It is so newfangled that there is no precedent for it in the tomes of the philosophers.

No political government that is founded on the philosophical concepts of the European and Asiatic creeds can accept this concept. It strikes at the very foundations of the Price System and demands for its acceptance the elimination of that system. This new concept has grown out of the expansion of the uses of extraneous energy. It has burgeoned from the energy flows emanating from the new plants across the Continent operated by the extraneous energy of coal, gas, oil, and hydro-electric power.

In the face of this concept, it is futile to attempt to maintain the old Roman custom of bread and circuses in the maelstrom of an economic crisis. That method was applicable when the crisis was small and only comparatively few people were involved in it. Today, with millions who will never work again, with more millions whose jobs, savings, and social security are trembling on the edge of the precipice of annihilation, with millions who have had leisure time forced on them, the handicraft method that worked so well in the Rome of the Emperors will prove of no avail.

Complete Change Coming

Yesterday, we groped among the vain imaginings of the fore-runners of the human species and studied the ancient and embryonic writings of our predecessors for precedents on which we could base our actions. Today, it is useless to look to the past for our salvation and our help. We can no longer trust to the anthropomorphic beliefs and the animistic superstitutions of the archaic philosophies for our aid in present troubles. The new concepts have arisen out of new conditions. For the technological problems of today, we must use the technological solutions that are to be found in the works of science and not in philosophical subjective treatises. For the problems of the America of today, we need the American solution. The methods of Europe, Asia, Africa, or Australia are worse than useless to us.

The operation of our present technological equipment, and the utilization of our present natural resources with the reduction of waste effort and waste time to the irreducible minimum, will entail a complete change in our concepts of the relationship of physical labor to the human being, and of the human being towards the social control under which he has to live. Human labor is becoming of less and less account. Even under the anachronistic methods which we still employ, human labor only accounts for two percent of the energy used in producing goods and services. Under a technological control, as outlined by Technocracy, the amount of human labor required would be reduced so far that it would be negligible.

The elimination of human toil, therefore, instead of bringing a major problem of human leisure to the fore, would have an entirely opposite effect. Leisure, being the antonym of human labor, would also disappear. Leisure, as we know it today, neither could nor would exist. When human toil goes into the discard, leisure goes too, just as the shadow disappears when the object casting the shadow moves out of the sunlight. Instead of a condition which presupposes the division of time into two periods, one of work and one of leisure, the waking hours of the human race would be employed in two new occupations.

Living

Leisure is the avoidance of human sweat and perspiration, the forbearance from occupation, and the abstinence from employment. It can only exist in a society where human labor is the sole means of producing physical wealth. Under the Technate of the New America, leisure will fade into oblivion and cease to concern us. The first occupation will be the social production of physical wealth for human consumption. The second occupation will be in the development of living beings. There will be no room for leisure time since there will be no human perspiration to avoid, and the forbearance from occupation

of the only two types extant will mean the forbearance of the individual from life itself.

This second new occupation comprises a new way of living, a new chapter in anthropology, and a new set of habits, customs, and manners. The old concepts and assumptions of the ages of scarcity will not avail us in this new era. We will need to bring into our consciousness new concepts. We will have to use a new set of standards, and a new approach to all problems concerning the physical world in which we live. We shall be forced to abandon our imported Asiatic practice of ancestor worship. We will cease to reverence the archaic and will no longer bow the knee to the fetishes and the graven images that our ancestors held so dear.

The necessities of the new era of technological development will demand this abandonment of our prejudices, our preconceived opinions and our folklore habits. We cannot adapt ourselves to a metrical state of society and retain the empirical guess work customs of the past. We shall be forced to change our ways; not at the dictates of any individual dictator or group of dictators, but by the very nature of the physical forces that our research into extraneous energy has brought into play.

Whether we like this situation or not; whether it is pleasant or unpleasant, satisfying or distasteful; what we want or what we do not want does not matter in the least. If we wish to continue the act of living on this Continent under the physical conditions that have arisen here, we will have to accept the conditions as we find them with the best grace we can muster. The changes we are living in the midst of are irreversible changes. There is nothing we can do but conform our lives and adapt our ways so that we can make the best of them. We cannot reverse the irreversible; nor can we go back to suckling at our mothers' breasts.

The Old and the New

Technocracy postulates a new order of living. Technocracy foreshadows the passing of the old ways. The resolving of the 'how' of life, the presentation of the way to live instead of the way to exist, the search for the means by which we may banish from the mechanics of life all but the irreducible minimum of waste effort and time, will occupy the years we shall have at our disposal. The handicraft worker has been so circumscribed by toil that he never knew how to live. He had to drudge long hours to produce enough so that he could exist in order to produce more. Life was a round of dreary monotony.

The dreariness of this monotonous round of life was such that man has sought in vain for some way by which he could escape from the dread reality that he feared. The occupations of leisure have failed him in this attempt. In them he unwittingly foiled himself. He invented dream worlds within which he hoped to avoid these realities, and he promulgated the defeatist doctrine of the superiority of mind over matter. These were but defense mechanisms, the last hope of the weakling and the impotent.

In all the ancient philosophies we find a future world depicted, wherein the chosen would wander in fields of beauty, by streams of sweetness, and in cities of delight. The very few who have glimpsed the future beyond the barriers of toil and leisure know that such a paradise need not be withheld to some future state. It has been here all the time, waiting for the forward surge of technology to reveal it. As the floodtide of technology rises, as the barriers of toil and leisure fall before the flow of greater and greater energy conversion, we shall escape, not from reality, but out of the darkness of superstition into the sunlight of reality.

The beauty and the glory of reality must be contacted to be appreciated. Our physical senses have been so dulled by the opiate drugs of the philosophers, so benumbed by the close, fetid atmosphere of the hog-pens of leisure and the culture of the past, so calloused by the brutal drudgery of human toil, that we cannot assimilate the exquisite radiance of the realities of life itself. The magnificence of life has a grandeur, a majesty that far eclipses the pictures of all the heavens drawn by the old philosophers. The symphony of life leaves the greatest orchestration yet attempted by man but the discordant ululations of the primordial.

Today, we have but the culture of the leisure of the age of privation and scarcity—the culture of a leisure based on human exudations and the bodily exertions of men, women, and children; the culture of a leisure that flourished in the hotbeds of disease, bestiality, and filth that typify the past; the culture of a leisure that has passed into its second childhood and is but a ghostly shadow of its former self.

Tomorrow, we shall have dispensed with human toil, dispensed with leisure, and relegated our musty culture to the museum and the library. We shall have before us the task of becoming cognizant of the way to live. We shall have to acquire a new sense of humor. We shall have to evolve a new zest for life. We shall have to learn to play, even as our fathers had to learn to work, to swink, and lather in the fields and at the bench. When the monkeys in the lands to the south of us no longer view us with compassion, we shall have come into our own.

Instead of a strained, debasing, unwholesome, and degrading existence; instead of being locked out of the Garden of Eden for daring to seek the knowledge of how to cultivate that garden; instead of being forced to lead an existence in which the sole pleasurable sensations are those of sleeping, eating, drinking, and propagating our species, intermixed with a man-made desire for acquisitive superiority, we shall be free, natural and untrammelled human beings. We shall have passed beyond the zone of the brute beast. We will have the opportunity, if we can take it, to become a new species of the genus homo.

Leisure was the hallmark of freedom in the days of scarcity. It was the distinction between the master and the slave. When scarcity has departed to return no more; when the masters and the slaves have been relegated to the history book and the legends of folklore; when abundance and the Technate of the New America are with us, both toil and leisure will have been eradicated. If we have the requisite knowledge and the ability to apply it, we may then travel ever more and more closely to the center of that irreversible and uni-directional road of life, along which we have to travel, willy-nilly.

We shall find that in the New America that is to be, instead of eking out a precarious existence, we all shall have to learn to live. We shall be forced by the pressure of technological changes to become the leaders in the forefront of a new civilization. We cannot remain semi-apes. We shall have to be on our way to become objective human beings. Leisure will have been eliminated. Life, properly lived, has no room for such puerility.

Continental Tour

Howard Scott to Address Mass Meetings!

On October 12, Howard Scott, Director-in-Chief of Technocracy Inc., and his party, will leave for a Continental tour of specially selected cities, reaching from coast to coast in the United States and Canada. Mass meetings will be held at each point. Following is the itinerary.

Cleveland, Ohio	October	14
Akron, Ohio	"	19
Appleton, Wisconsin	"	22
Winnipeg, Manitoba	"	25
Regina, Saskatchewan	"	28
Saskatoon, Saskatchewan	"	31
Prince Albert, Saskatchewan	November	3
Edmonton, Alberta	"	7
Calgary, Alberta	"	9
Vancouver, British Columbia	"	14
Victoria, British Columbia	"	16
Seattle, Washington	"	20
Portland, Oregon	"	22
Salt Lake City, Utah	"	26
San Francisco, California	"	30
Los Angeles, California	December	4
San Diego, California	"	7
Phoenix, Arizona	"	11

For Technocracy, 1938 has been dramatically eventful. The Price System has come closer to its crisis by plunging into another downward oscillation from which it has not recovered despite frenzied governmental and business efforts. Within the Organization, this substantiation of Technocracy's position has had its effects, and from the general public has come an increasing assent to Technocracy. For weeks a demand from within and without the Organization has arisen for a coast to coast public appearance of Howard Scott.

As a result of these circumstances the above itinerary was authorized. Not more than eighteen of Technocracy's most strategic locations will be visited. These cities (with one or two exceptions) are the focal points of from five to thirty units of Technocracy. Plans are being formed to have all of the members and officers, in some cases from over a hundred miles away, converge upon these key cities to participate in the public lecture, and in joint membership conferences.

Extensive advertising campaigns to cover surrounding towns are also being formulated, and it is anticipated that considerable numbers of out-of-town visitors will swell the local audiences.

Last year Howard Scott made a tour of the Continent, a tour that demanded a four-month intensive schedule of lectures, conferences, and automobile travelling. At that time most units of the organization were visited. This year the same coverage could not be made in six months. By 1939 it would take a year to do it! The increasing order of magnitude of Technocracy Inc. has changed the method and made it impossible for its Director-in-Chief to visit all of the many centers where he would be given a rousing reception. Henceforth the size of the Organization, the vastness of this Continent and the responsibilities entailed in the approaching realization of Technocracy's objectives will limit the appearance of Howard Scott to the larger centers where definitely larger audiences will be able to hear him.

While it is true that Howard Scott is responsible for Technocracy's analysis and organization technique, and it was he, who single-handed, carried Technocracy across the Continent, it is no longer necessary or physically possible for him to pioneer in the microcosmic sense out into the wilderness of the Price System. The leadership of this Organization, which has undertaken the responsibility of guiding a Continent through what will be the greatest social change in all history, demands henceforth a pioneering job of a larger order. Six years of organizing effort have borne fruit, and today, throughout the Continent, a trained officer and membership personnel is capable of conducting and extending the work of the Organization, and the dissemination of the facts of Technocracy.

Advance reports indicate that the majority of the Tour Committees which have been appointed in each city anticipate audiences of not less than 2,000.

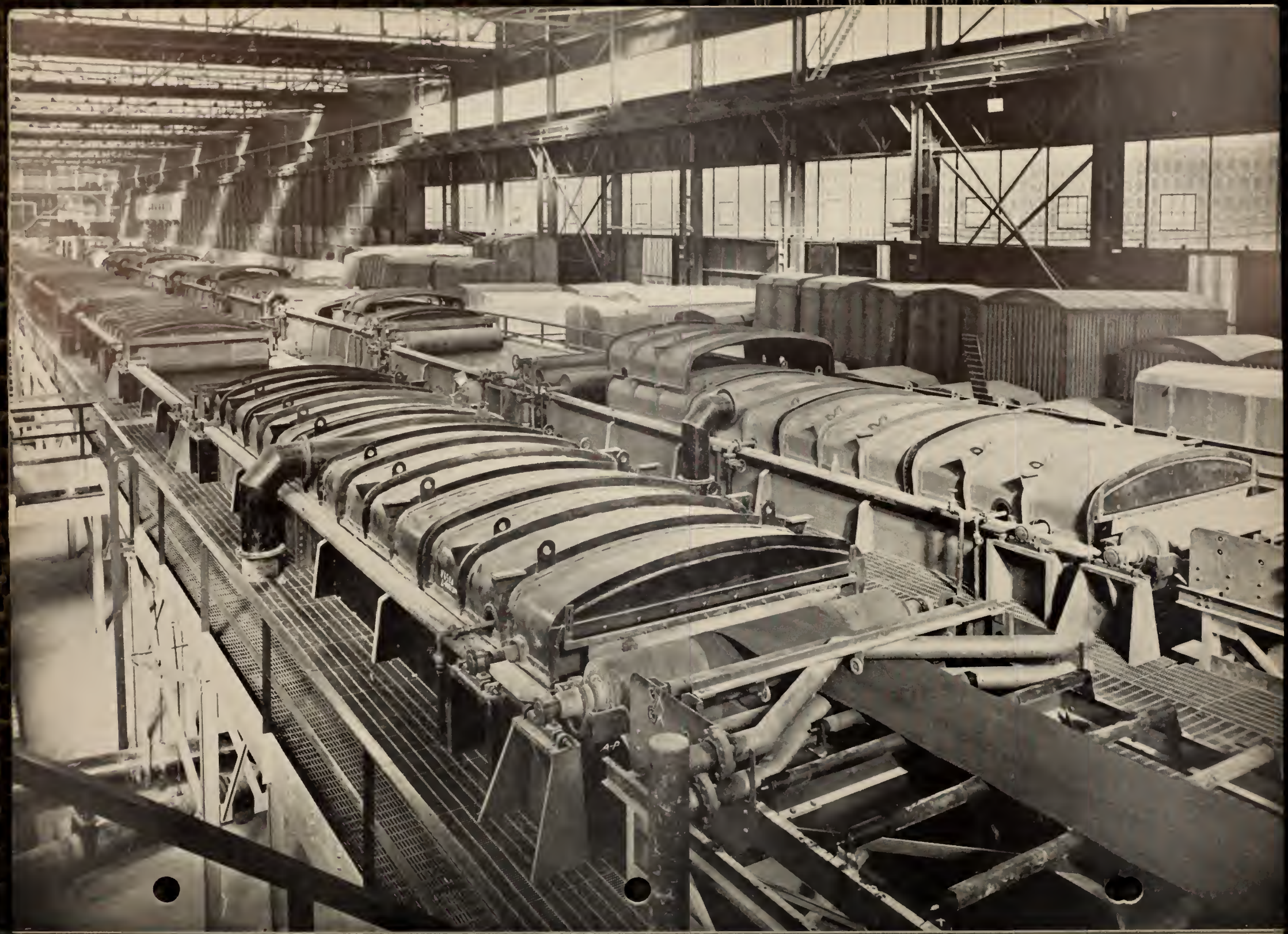
In some cases it is likely that admissions will reach 8,000.

In addition to their preparations for the public lecture, some Tour Committees are planning a large, combined public-and-membership dinner where the Director-in-Chief will be the guest of honor and following which he will speak. In this manner opportunity will be given many people to personally greet Howard Scott in an atmosphere removed from the formalities of the lecture platform.

To provide ample time for lecture, dinner, and other scheduled events a three day stop-over for most points has been arranged, and all of the available time between the two principal events will be occupied with special committee meetings, Board meetings, and general conferences.

STRIP STEEL BY THE MILE

In the old rolling mills steel had to be handled 25 times by hand tongs before it could be put into an acid bath for pickling. Today, it is handled not at all by hand, but rolls through as swiftly as 28 feet a second, taking only two minutes, from the time it leaves the furnace as a slab, until it enters the pickling baths. The two continuous pickling units shown in the picture are each 505 feet long. Each one consists of four 6,000-gallon acid tanks, and two 4,000-gallon water tanks. This is a part of the new 98-inch continuous strip mill of the Republic Steel Corporation at Cleveland, Ohio. Two years ago Technocracy predicted that 60,000 men then employed in the steel industry would no longer be required when modernization of the sheet and strip divisions of the steel industry were completed. According to the Steel Workers Organizing Committee the figure will reach 85,000. Technocracy is always conservative. (Republic Steel Corporation Photo)



Minerals and Living

By L. M. Dickson (CHQ)

THE multifarious and gigantic activities of North American people consume more energy and employ more minerals per year than have ever been used in history before. America's physical activity is the world's greatest phenomenon.

North Americans travel in more than 31 million automobiles of steel and glass, and on 470,000 miles of steel railroad track in metal trains. They work in steel-framed office buildings and factories, and work with more metal tools and equipment than any other people. They use more copper wire for telephones, radios and telegraphs; they use more tin and iron for food canning; they pipe more water, oil, and gas; they have more bathtubs, and cooling and heating equipment; they manufacture and process more clothes, foods, houses and toys; they do more mechanical sewing, cleaning, sweeping, threshing, and churning; they bottle and can more beer, type more letters, and light more electric lights; and they mix more concrete than any other people of any other continent on earth.

The reply to all this may be: So what!

North Americans have received as their heritage the greatest deposits of available mineral-bearing ore on the earth's surface. They are not responsible for its presence, but they have utilized it. They have dug the coal from the ground, harnessed the rivers, mined the metals, and processed the materials. They have done this and a new civilization has been produced—a new civilization with a new type of being, which has neither counterpart nor parallel. Providence did not provide an equal distribution of mineral-bearing ores throughout the surface of the globe, but Providence did provide them in abundance on this Continent, and the presence of these minerals has determined that on this Continent, mankind shall accomplish his highest technological development with the farthest departure from all of the concepts embodied in all agrarian and semi-mechanized areas.

On this Continent we have coal, iron, copper, lead, zinc, nickel—and, we have a civilization of superlatives. Americans are accustomed to greatness, and Americans are accustomed to change. Smallness and stagnation are foreign to them. They have exploited their mineral heritage, and not content to wrest it from the earth by the sweat of their brows in petty quantities, they have utilized the vast sources of power surrounding them, and have dragged forth the minerals in mountainous proportions. This has changed America and changed Americans, and on this Continent, old concepts and methods are scrapped ruthlessly for ever-changing, new developments.

This process has ensured a new type of living in terms of the use of things, and in terms of freedom from arduous toil. It has developed in production, if not in social control, the method of technological administration and procedure.

And so we find a Continent of 171 million people grasped by the current of a new progression. North Americans are only eight percent of the people of the globe; but they have 19 percent of the total land area. They have inherited the materials and they have developed the methodology of producing a physical wealth that cannot be duplicated elsewhere. But along with this they have developed a problem so complex that the procedures of governance and determination inherited from the countries of agrarian simplicity are totally incompetent to solve it. Americans are in a social quandary.

Geologically, the pattern of this Continent was laid down millions of years ago, but it is only decades since its minerals have been used, and the shape of its geological design has become apparent. A mineral civilization has emerged, a social confusion has resulted, and to Technocracy has come the responsibility of designing and applying the modus operandi of social control demanded by the Continent's physical design.

Minerals and Civilization

Prior to the Industrial Revolution in England, the use of metals per capita was of a low order of magnitude. Metals had been used only for better weapons, crude implements and a few crude tools. The very existence of many metals was unknown, machining was unheard of, and metallurgy was an unborn infant. But the weapons and tools of the ancients gave birth eventually to the age of iron and coal, and in the historical twinkling of an eye, the air of England became polluted with the black belching of factory chimneys, and the men, women, and children flocked to the mines and the rows of roaring, clanking machinery.

In this historical eye-twinkling a new England was born—one moment a green, agrarian isle; the next, a producer of cloth and machines. One moment a land of villages and farms, poverty stricken and dirty; the next, a land of cities, still poverty stricken and dirty. England began to produce; she produced more and more, but she worked not for herself, and became instead the workshop of the world. In spite of this, Englishmen soon possessed more physical wealth than any people had ever done in history. They consumed more, they travelled more; but with their crude technology they toiled longer and harder, and more of the people acquired some of that stinking corollary of toil, leisure. Good or bad, a change was effected and a progression had started.

In the meantime, ancient China remained as it had been for centuries. In China there was no increased use of minerals; the population remained huge and stable,

agrarian and poverty stricken; and although the words of Confucius were heard over the land, no change took place in the lives of the people. China remained stagnant; it did not use tools; the means whereby people lived did not change, and nothing happened.

Without mineral resources and their development, no change in the magnitude of social operations is possible. The uneven distribution of minerals with contingent power over the surface of the earth has led to a progression in some places and stagnation in others. Social philosophy may talk about the survival of the fittest, but no social philosophy can inaugurate the planned progression of the arrival of the fittest, which is what inevitably must occur in any area which uses minerals and converts energy at a high rate. With the mineral resources of the world as they are, or until we change from a metal-alloy civilization, the universal brotherhood of man remains a philosophic concept—an idle dream of the might-have-been.

Thus, where we have abundant minerals and power, we have technological sequences with their resultants in social control, and where metal resources are insignificant, or remain undeveloped, we have static individualized social economies. China's 470 million people with their lack of resources are destined to continue at or near their their present low scale of living unless new sources of energy and minerals become available, or until a calculated Oriental ruthlessness, or an unpremeditated catastrophe decimates their population by two-thirds.

The 171 million people on the North American Continent have the most fortuitous combination of mineral ores and power resources. Practically every geographical area on the Continent from the Arctic to the Panama contains materials in abundance for a mineral civilization, and in the United States, Canada, Mexico, Guatemala, Honduras, Costa Rica, Nicaragua, Salvador, Cuba and Panama we find almost all known products of the mines, including metals and non-metals.

America has developed a mineral civilization and brought into being a new tempo of existence, but that is not all. The conversion of energy at a high rate on this Continent, in conjunction with the use of these minerals, has made possible a social determination which is not possible elsewhere on earth. Where energy is converted at a high rate, it is possible to design a social totality from the macrocosm down to the microcosm. The energy determination of the costs of all goods and services, enables the rates of flow to be determined and controlled, and lays down in advance the design of all structures, and the schedule of all operations. In the construction of a single house, drawn by an architect, shaped piecemeal, and put together item by item with hand labor there can be no predetermination of design. But in the construction of *machines-for-living* for 171 million people by technological processes, an accurate precalculation of the energy cost lays down the method of construction, the design of the living totality, and eventually, the design of the individual unit, right down to the bathroom.

Without energy conversion, without minerals, and without the elimination of human toil and inefficiency all of this would be impossible. On the North American Continent a progression has been started. The materials are here. Only the further application of technology is required. The possession of the materials makes a higher standard possible, but does not guarantee it. Just as England began to convert energy at a much higher rate without correspondingly increasing the standard of living of Englishmen, so has America converted energy at a much higher rate without correspondingly increasing the standard of living of Americans. But the possession of the materials makes the next step possible, and now in sight is the social objective of Technocracy—the application of technology to all social processes.

North America and the World

The Continent that North Americans habitate is over nine million square miles in area extending from the North Pole to the Panama Canal, and from 54° longitude west of Greenwich to 172° west of Greenwich. It has more miles of waterway capable of navigation than any area on the earth's surface. Its topographical conformation embraces every type of land surface including coastal plains, mountains, valleys, plateaus, prairies, and below sea-level deserts. Its natural vegetation ranges from the types found in the steaming jungles of Guatemala to those of the tundras of the north.

The relatively small population of this physical entitity, together with its resources and its area, place it in a unique position amongst the continents of the earth. This is shown in Table I. With its resources, technological development, and conversion of energy it has a population density of only 18 persons per square mile. This compares with a density of 12 per square mile in South America where the conversion of energy is relatively low, and where many of the essential minerals are not to be found, and it compares with Europe's density of 133, where the energy conversion per capita is smaller than North America's, and the totality of its mineral resources is not to be compared. It is no wonder that there is a growing sense of dissatisfaction amongst America's 18 million relief recipients, and its millions of semi-poverty stricken.

Yet, in spite of this poverty of millions of Americans, statictics reveal, not a mere difference of degree in consumption, but such a difference in magnitude that a totally new situation occurs. Innumerable comparisons could be drawn, but a few items highlighting the commodities and services supplied by the Power Age may be cited in quantitative comparison with certain European countries which next approach the United States in these regards.

The people of the United States have one automobile for each five persons (81.7 percent of world's total); the people of France and England have only one for each 22; and the people of Poland one for each 1,200. We have one radio for every five people; Russia has one for every 90; and Bulgaria has one for every 350. The United States has one telephone for every eight people; Denmark has one for every 10; the United Kingdom has one for every 20; Russia has one for every 200. In New York City there are 1,569,337 telephones, or the combined number of telephones in all India, China, Russia, Poland, and Czechoslovakia. In New York City 142 gallons of water per person per day are consumed; in London only 43, and in Berlin 38. In industry in the United States there is an installed capacity of 4.86 horsepower for every employee; in Germany 2.61; in Britain 2.56; in Italy 2.14.

These figures which express the relative consumption of items which we take for granted, are closely approximated in Canada. But of even greater significance are the figures revealing the total kilowatt-hour production of the various continents as shown in Table II.

Table I

Continent	Population	Area	Density-Per Square Mile
Asia	1,069,321,501	16,009,987	67
Europe	504,004,349	3,780,000	133
Africa	142,171,120	11,244,043	13
South America ...	87,550,515	7,051,883	12
North America ...	*171,650,334*	*9,352,042*	*18*

Table I shows the areas and populations of the Continents and the number of people supported per square mile. The subsequent tables show relatively the productivity of these populations.

Of the world's total area of 197 million square miles, 142 million are water, five are ice and snow, and about 25 are practically uninhabited desert or mountainous country, leaving only a mere 25 million square miles wherein we find the bulk of the world's two billion people.

In all the things which people use, the equipment which they work with, and in their consumption of services, lies what Technocracy defines as the standard of living. In spite of the Price System, these things on their mineral foundations have reached their greatest magnitude on the North American Continent. What about America's actual production of minerals?

Minerals of North America

In Table III we see the latest production figures for the important world minerals. Although no indication of the magnitude of North America's reserves is given, these figures provide a significant indication of the extent to which our reserves are being used in comparison with those of the rest of the world. In the minerals listed we find America dominant. In other minerals of lesser quantities America also leads world production, while in others this Continent is deficient, and in one or two is apparently almost lacking.

Of the minerals which are apparently non-existent in industrial quantities, tin is the most significant. In many processes it is used in steadily increasing amounts, yet America must at present import its supplies. The 1936 importations amounted to about 75,000 tons of the world's production of 157,000. In that year the United States only produced 102 tons (Alaska); and Mexico 621 tons. Since the year 1902 only 1,365 tons have been produced by the United States. To conserve supplies of this metal, Congress has made it obligatory to obtain a license for the export of tin-plate scrap. Yet, it is highly significant to note, that in spite of the scarcity of tin on this Continent, 49 licenses to export it were granted between July 1, and December 1, 1936. These shipments totalling 6,483 tons were all for Japan!

Table II

Continent	Population	Kilowatt-Hours	Kw-hrs. Per Capita
Asia	1,069,321,501	29,462,000,000	28
Europe †	504,004,349	230,919,000,000	457
Africa	142,171,120	5,138,000,000	36
South America ..	87,550,515	1,780,000,000	20
North America..	*171,650,334*	*151,071,000,000*	*880**

* The above kilowatt-hour production for North America does not include the Central American republics. It should also be observed that the kw-hr. production of Canada is 2,507 per capita, and that that of the United States is 952. The average for the two countries is 1,077. The production figures are from the *League of Nations Statistical Yearbook*, and cover 1936, except those of North America, which are for 1937.

† Includes Soviet Russia.

Besides tin, we find that the only other metal of significance which is rare on this Continent is vanadium of which most of our supplies are imported at this time. Manganese too, is imported to the Continent although reserves are known to exist in Cuba. Others, notably chromite, cobalt, and nickel, which are not found in abundance in the United States are produced in other parts of the Continent—Canada and Cuba. Of all the other minerals, ample are available on this Continent to meet all present domestic requirements.

When we come to an examination of the magnitude of the total mineral reserves of the Continent it is more difficult to obtain accurate statistics, as the data are all estimates made by various authorities, some of which differ considerably in their methods of estimating, and in the scope of their observations. In some cases reserves are considered to be deposits which are located conveniently to a railroad and can be extracted at a monetary profit at the existing market price. Other reserve estimates are based on what might be extracted under existing conditions with the existing mining technology. And others are based upon any criteria between and beyond these two points. To illustrate this we quote the following from the *Minerals Yearbook*, 1937, of the United States government.

'An important factor to bear in mind is the approximate price level, which is considered in making the estimates for each mineral, as variable prices may change the availability of reserves in very large amounts.'

Thus, if the price of lead goes up, we will automatically have more lead than we had the day before!

However, taking the report of the National Resources Committee, we find that coal is our most abundant mineral with deposits estimated to last four thousand years at the present rate of exhaustion. Other minerals found in plentiful abundance with no likelihood of early depletion are iron, limestone, gympsum, aluminum, and molybdenum.

In the second classification we find those which exist in large quantities but which conceivably might be exhausted within the not distant future. Preeminent among these is oil, predictions regarding the exhaustion of which place the life of the known reserves at from 10 to 40 years maximum. Others which could be exhausted within a number of decades are lead, gold, silver, copper, zinc, fluospar, china clay, graphite, mica, asbestos, and magnesite.

The danger of the exhaustion of these latter is not immediately alarming. In the first place, one must consider the basis upon which the estimates were made. And secondly that the possibility of early exhaustion would be much more pronounced had the expansion of the Price System continued at its early twentieth century rate. At an increasing extraction rate of five to seven percent each year, depletion would soon occur. But as

Technocracy has pointed out, the Price System has ceased to expand at its former rate, and the inflection or turning point has been reached. In many cases the actual peak of production has been passed and less and less of the minerals are being produced. This factor will be significant in prolonging the life of these non-recurrent resources. Furthermore, with a technological administration of the social totality, greater efficiency in the production and use of metals will ensue, scrap supplies will be conserved, export business will be eliminated, and substitutes of recurrent materials will be developed. Thus, under a Technate, the life of these irreplaceable resources will be vastly prolonged.

In the third classification we find those listed as deficient to meet domestic requirements. Here again, we find that financial considerations often prohibit the extraction of ores which are physically available, and we will find that as a more thorough exploration of our land is made, more deposits will become known. Minerals in this third classification of the National Resources Committee include some of those mentioned above as being deficient: manganese, chromite, vanadium, mercury, and tungsten.

In summary of Ameria's mineral resources it is interesting to note that the *Minerals Yearbook*, 1937, of the United States lists 89 different mineral products for the year; the *Yearbook of Mexico* lists 22 which are produced in commercial quantities, and the *Canada Yearbook* lists 49. Not all are mentioned in these lists as the total of all kinds runs into the hundreds.

With this teeming plethora of mineral abundance America is alone in the world with its problem—its one and only problem—not the scarcity problem of Europe, Africa, Asia, South America or Australia; but the problem of applying an operating design suited to its structure of steel, concrete, copper, zinc, and other minerals. Technologically, America has progressed. Its industrial plants and processes, although marred by piles of antique junk, show in their best practices the world's highest development.

Technologically, the developments of recent years have been astounding. During the period from 1923 to 1936, a total of 3,752 scraper loaders and 470 shovel loaders were added to the mechanical equipment of underground metal and non-metallic mines in the United States alone, and in metallurgy even more significant developments have been recorded.

Man-hours have become steadily more and more productive. In iron-ore mining, productivity per man has increased from 234 tons in 1880 to 2,560 for the year 1929. In coal mining the increase was from 422 to 930 tons; in copper mining from 9,290 to 44,900 pounds of metal; and in phosphate rock from 90 to 1,206 tons. In 1923 the tonnage of bituminous coal loaded mechanically was 1,879,000 tons as reported by 60 mines; in 1935 this had increased to 47,177,000 tons loaded by 317 mines.

A Greater Patriotism

We could go on endlessly but let us return to a statement made several years ago by Howard Scott, Director-in-Chief of Technocracy Inc.

> There is but one area from the standpoint of its geologic set-up, equipment, and personnel and the state of its technology that is competent and ready to inaugurate a new era in the life of man.

That area is obviously North America. Americans in

Mineral Production, 1937*

Some of the lesser minerals not given here are discussed in the accompanying text. The column at the right, giving the percentage of total world production produced in North America, contrasts sharply with North America's population percentage which is only eight percent of the world's total.

	Metric Tons	*American Percentage*
Crude Petroleum		
World Total	278,645,000	
North America	173,334,000	62
Natural Gas		
World Total	67,899,000,000‡	
North America	62,184,000,000	92
Coal		
World Total	1,310,000,000	
North America	459,463,000	35
Asbestos		
World Total	503,000†	
North America	283,300†	56
Salt		
World Total	34,000,000†	
North America	8,919,000	26
Steel		
World Total	135,500,000	
North America	52,803,000	38
Copper		
World Total	2,300,000	
North America	1,084,200	47
Lead		
World Total	1,670,000	
North America	829,300	50
Zinc		
World Total	1,620,000	
North America	782,900	48
Aluminum		
World Total	493,400	
North America	175,400	36
Magnesite		
World Total	1,166,000	
North America	221,700	19
Nickel		
World Total	88,000†	
North America	77,100	88
Sulphur		
World Total	3,400,000	
North America	2,786,000	82
Phosphates		
World Total	12,800,000†	
North America	4,329,000	34
Superphosphates of Lime		
World Total	14,370,000†	
North America	4,080,000	29
Potash		
World Total	3,100,000	
North America	258,000	8
Cement		
World Total	75,080,000†	
North America	20,291,000	27

* League of Nations Statistical Yearbook.
† 1936. ‡ Cubic meters.

general are not interested in the exact tonnage of steel or coal produced here or elsewhere, nor are they interested particularly in how their telephone operates; but they do know that there is a hell of a lot of coal and steel here, and they do know that they can use a telephone when they want to.

In the same manner, Americans will not understand the mathematics, science, and technology employed in the design of a new social control; but they do know today, that a new order is possible, and they, the people of North America, are demanding that the riffraff of social institutions blockading the way to the New America, be swept aside. Americans have no reverance for the customs and institutions of the past. They are looking only toward the future, and for a greater America. Woe betide the impedimenta of social riffraff when Americans decide to clean up!

Americans, whether they live north, south, east, or west on this Continent, love their America. They resent even an implication that greater things will come from other areas of the earth. They have been endowed magnificently, and out of their environment is emerging something new—a Continental patriotism—a patriotism for the New America.

Such is the spirit of the land of minerals, machines, and power. The American whether he be in Mexico, the United States or Canada is awake to the possibilities of a New America.

Coal, steel, oil, copper, zinc, nickel, and a civilization of superlatives: the one is the offspring of the other. Technology, science, energy, and a greater patriotism for a greater America: out of these will come the greatest, and most sweeping social movement in history. With their heritage of metals and power, Americans know that they can advance to a degree of efficiency where waste, scarcity, malnutrition, and disease will be routed from the ken of man on this Continent. The world has witnessed the physical development of America, but the world has yet to witness the great American phenomenon —a Continent of peoples with but a single dominant objective.

The Pursuit of Happiness

By Harold Fezer (CHQ)

IN all the millenniums that man has haunted this best of all possible worlds the pursuit of happiness in some form or other has been his major desire.

Man's pursuit of happiness has often been furthered by his manufacture of ideals and application of knowledge, but it has just as often been hindered by holy Precedent, the god at whose altar so much in the course of time has been sacrificed. The code for human behavior has swung between the extremes of desperate clinging to the untenable dead past and wishful contemplation of unattainable ideals. It is a question which have made man unhappier, his precedents or his ideals.

In 1633 Galileo was punished by the wise and all-powerful men of his day for promulgating the astronomical heresies which, unknown to him and to them, the early inhabitants of the Americas had discovered and used in the design of their calendar thousands of years before.

Today we know that about 600 B.C. an astronomical congress was held at Copan in what is now Honduras in Central America. There are inscribed on the altars at Copan dates which take us back to the start of the year one of that era, namely July 13, 3313 B.C., as expressed in our own calendar. In order to make their astronomical calculations these early Americans had to know that the earth is a sphere and that it revolves about the sun.

So poor Galileo was kicked in the shins during his pursuit of happiness for publishing observations known to one branch of genus homo sapiens millenniums earlier!

Later, the pendulum of the code of human behavior is found at the opposite extreme. It is the year 1776, at the Continental Congress in Philadelphia. The Declaration of Independence has just been signed. No longer is man to be silenced! Here he proudly declares to the world, 'We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the Pursuit of Happiness. That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed, That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness.'

Here at last there was no differentiation among men, and no hesitation in reaching for the best and the highest and the most noble. Others, before, had spoken of equality among men, but their equality had usually been reserved for the glorious hereafter; now, a new leaf was to be turned in human relations. Physiological structures were of course to be altered. Black was to be lightened a bit, and white was to be made a few shades darker. Sort of a third cousin affair on a national scale.

These changes and a million others were to be effected by means of that sacred instrument, the Constitution, soon to be sprung on an unsuspecting world. The Constitution was to furnish the legal weapons which would allow every inhabitant to carve or bludgeon his way

through his equals in his own private pursuit of happiness.

Fortunately for their historical reputations, these August Equalizers were saved from the need of trying to deliver the goods which they had promised so enthusiastically in their Declaration. They were sold down the river by the 'framers' of the Constitution, the prime chiselers of their time.

'Pursuit of happiness!' Most assuredly, that was what the Constitution was drafted for—for those who seemed to deserve it, for those whom God had clearly designated His favored ones!

And so we find that among other things these worthy framers prescribed that a citizen must be a property owner to be qualified to exercise that major prerogative of a sucker, the ballot.

There were other flies in the equality-of-man ointment. One of them was the American Indian. The annoying thing was that he was a man, and therefore, by definition, an equal. They solved *his* problem by despatching him to his happy hunting grounds. Fire-water and firearms were found to be very persuasive.

The pursuit of happiness progressed lustily in the face of all difficulties. Frontiers were extended. Immense fortunes were amassed. After all there were 'certain unalienable rights,' and all one had to have was the proper physical, mental, and financial heritage and a knowledge of one's Constitutional Rights. Simple for those who qualified. They surely could not be blamed for the others who in the process were mangled. God helps those equals who help themselves, and the devil take the hindmost.

Providentially, in that expanding economy, the mistakes of one year could be covered up with the advance of the succeeding year, and even the hindmost somehow got by. At least they did not become numerous enough to squawk with much effectiveness.

Then came the Civil War, and a free and equal people indulged in a most sanguinary fratricidal war. Indeed, 'the land of the free and the home of the brave.' The pursuit of happiness was interrupted temporarily, except for those citizens who died happier in the war than they had lived in peace. Alive they were forgotten, but dead they could be remembered as heroes.

The South was gutted and the pursuit of happiness flourished as never before. The freeing of the slaves had removed several million black specks from our shining armor of equality, and a quick glance found only free and equal men across this wide country of ours. Progress continued. And why not, since this was God's own country, endowed most bountifully and preferentially with the riches of the earth?

The Machine Age began its march. Mass production methods were born. There were halts and fits and frets, but always after the short periods of general anxiety the onward march continued. Between one pair of fits the diversion of the 'big stick' was flaunted before the public as a red herring, and the big bad companies were split up in many parts. No one seemed to notice that each part created its own pile of debts—sometimes known as financial wealth—as fast as the parent body formerly did. What limitless credence is given to the words of the mighty!

There came that greatest of all spectacles—North Americans going 'over there' to make the world safe for democracy! The pursuit of happiness along material lines on our own Continent was not what was required to gratify the real meaning of our lives, we suddenly discovered; great and extraneous aspirations were needed to round out our exuberant existence in this most illustrious of all democracies. How thankful must we forever be to our great ones for selling sufficient quantities of material to the right parties, in order to get us to the point where we would let our hearts' need materialize into action!

Pursuit of happiness! At last the undeniable right to leave the boredom of family and home. At last the chance to win the indebtedness of our country, after being indebted for so long to our equals! Adventure, one of the purest forms of happiness, beckoning us so excitingly from the recruiting posters that we saw. Never be it said that we Americans do not rise to the occasion when the welfare of people thousands of miles away is at stake.

All in all, our expedition in the pursuit of happiness was rather costly, and the Great Scholar who was our leader at that time never quite got over the turbulence which the whole mess caused. But, then, his constitutional rights did guarantee his pursuit of happiness and allow him to dare to keep us out of the war long enough to be elected to the White House for a second term. Are we to say that he would have been happier if he had kept his promise of the election platform? Of course, as has been said, election platforms are made to come in on, not to stand on. Life is complicated indeed. One never knows, should one or should one not?

The World War came to an end, and our pursuit of happiness had again to change to the northern half of this hemisphere. But there was yet one last effort we could make to bring happiness to the rest of the world. The Machine Age was changing to the Power Age, and certain internal strains, we saw, could be temporarily eased by extending credit to foreign countries and their citizens in order that they might acquire goods from us, paid for with the credit which we might give them. This was done, and all the altruism of previous ages must be considered a poor thing indeed compared with the magnitude of our bestowal of physical goods upon the rest of the world.

There is, unfortunately, a sad side to this particular phase of our national pursuit of happiness: our citizenry in general cannot bask in the warmth of its altruism since it is quite ignorant of its own magnanimity. The job was done efficiently, and without explanation to a free and equal citizenry which finds it painful to figure out anything for itself. So long as things drag on at a pace not too intolerable, it is far easier to gorge on the pap that is ladled out by the great ones through their agencies of public information.

The Power Age, and the glorious and eternal 'twenties.' The pursuit of happiness almost ended. Behold, we had arrived at the gate of a garden of Eden. A chicken in every pot, two cars in every garage, and a stock market for every sucker in the land to get rich quick with. Opulence was assured; for us, our children, and our children's children. Verily, we were the chosen ones, save a small percentage amounting to several million at the bottom who had not yet quite started on their pursuit of happiness. But even they were well off, for the less they received here, the greater was to be their reward in the hereafter. All was well.

Then lightning struck from the sky which seemed so

clear. Our pursuit of happiness found us in a dead-end street, and we turned back to the nearest corner and to the pastime of selling apples. From there we became a nation of corner turners. And there were so many corners! And our leaders were resourceful beyond our fondest expectations in finding still other corners which we were about to turn! Our Man of the Hour had floated many an issue of mining stock, but now he was up against a problem which could not be solved by the technique of stock promotion; he faced, helpless, a nation whose social fabric was being rent asunder by applied technology, the technology of which he knew so little, even though he was referred to—erroneously—as an engineer.

These were dark days for the pursuit of happiness, and only a young and vital people could have come through their harrowing ordeal. Uncle Sam's credit reserves were drawn upon to alleviate the hunger pangs of the lesser free and equal ones, and the Reconstruction Finance Corporation was formed to rescue the neediest of the great ones' concerns. We never quite arrived at any corner, but we carried on bravely.

The people were ready for a new leader; they were already 'against' the old one. A real friend of the people was needed. And lo, he was found. The Great Orator who was moved by the sufferings of his people, and who promised to lead them to new pastures, greener than were ever mouthed by free and equal sheep before. The pursuit of happiness was to enter a new phase of far greater 'take.' We were all to share in the fruits of the labor of the nation; not equally, but abundantly.

The New Deal was born.

It triumphed. It went to town. The Blue Eagle was displayed everywhere. The miracle of the bootstraps again was invoked. We had proven to the world that we were one people, united in our credo of always trimming the sucker, on or off relief, in or out of WPA.

The New Deal accomplished great deeds. It opened the banks. It killed the pigs. It ploughed under the cotton and corn. It promised to plant the fabulous tree belt. It fought droughts, floods, and erosion, caused by decades of indomitable, individualistic pursuit of happiness. It brought liquor back. And the greatest of all democrats was at his best.

In between there had been a flare of world-wide publicity for that strange new thing called Technocracy. Of course, it had shown its head more than a decade before that time, but only a few individuals had cared to interest themselves with so remote a question as where we, as a people and as a Continent, were headed. At the moment of greatest despair the gentlemen of the press in conjunction with a few other disinterested patriots considered Technocracy a fine thing to be ballooned for public admiration and diversion; but later, upon discovering that proper behavior could not be obtained from Technocracy even after much prompting and offers of platinum handcuffs, Technocracy was dropped as of no consequence, except to serve as a source of passing ridicule.

The New Deal progressed and advanced on all fronts. A new concept was accepted. No longer were we constrained by the old notion of no work, no eat. Our idle millions, our aged and infirm, were to be looked after by Uncle Sam. The age of social security had dawned—with a third of the nation remaining ill-fed and ill-housed in this richest country of the world. But so long as the category of lesser free and equal ones could be kept from increasing too rapidly, a means could always be found to confuse the issue, thereby prolonging the paradox of want, disease, and other concomitants of the state in which they freely and equally existed. If only that ratio of one-third could be kept from increasing, then there need be no fear of, and no need for, a new social order. The old game with a New Deal for every new hand could be perpetuated ad infinitum. Trouble need not be expected from the one-third, but, rather, the other two-thirds, whose pursuit of happiness is so unfortunately becoming endangered, and who will let loose one awful howl once they realize that the 'take' is no longer there.

The pursuit of happiness continues. The way narrows, but, head down and elbows pistoning, the greater *equal* inches ahead, bullish in his belief in the efficaciousness of his individual efforts. The last effort of rugged individualism is truly wonderful to behold.

The American citizen is not satisfied with the old ways. There is an increasing amount of time and thought given to social questions. Still he runs amuck in various politico-economic schemes for attaining that fullness of life which he is told is available. His President, the National Association of Manufacturers, the United States Chamber of Commerce, and a great many other standard sources of reliable misinformation assure him over and over again that the nation is fundamentally sound, and so he goes out and sides with this, that, and the other organization—amazing, all.

Yet, the physical wealth does exist, the technological equipment is installed, the trained men are available. Where is the key to the abundance and pursuit of happiness which has been promised these many years?

The Constitutionists did sink the Declaration of Independence, and the Equalizers did perhaps let their ideals carry them afield, but in spite of this the central theme, the pursuit of happiness, remains.

We citizens of North America live in a Continent of sunshine and spaciousness and abundance. We possess much technological knowledge. We have advanced considerably along the road of scientific observation, deduction, and correlation which was already a footpath many years ago at Copan and other places on this Continent, centuries before our ancestors left their tribal hangouts. Modern science has enabled us to extend and enrich immeasurably our social pattern.

Let us restate in one way a new theme for a pursuit of happiness.

The increasing technological orchestration of this Continental whole is producing such a plethora of goods and services that there soon will be *forced* upon our society the choice of a governance which will be entirely responsible for the material well-being of every one of its citizens from birth to death.

We are not equal as man to man. We are unequal in our capacity to serve and we are unequal in our capacity to consume. We will, however, be equal as citizens. Citizenship will be an equal obligation of service by all, bringing an equal and irrefutable claim upon the abundance of our Continental wealth to all.

The march of events is bringing the American people face to face with the need of invoking that part of the Declaration of Independence which states that 'whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish

it, and to institute new Government, laying its foundations on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness.'

Technocracy is doing its best to be ready when the American people decide to claim their rights under the Declaration of Independence.

How fortunate we inhabitants of this most favored of all Continents are: Previous generations had to venture forth in the darkness, groping their way slowly. Today, the next step in the structure of human society is already chartered. Its magnitude is staggering. Its possibilities for following the pursuit of happiness are innumerable and enormous.

You will not be able to remain unaffected in this greatest of all social constructions. Why not be in the vanguard and fill a post where you are needed, and will become a live hero? Our forefathers went out many times, for lesser causes, to become dead ones. Align yourself with Technocracy in your pursuit of happiness!

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The Dementia of Democracy

Continued from Page 6

The citizens of the United States will shortly be called upon to give their mandates through the ballot for the perpetuation of further political moronity, for more political viciousness, and for greater political rottenness. This is the tragedy that is inflicted upon the United States by the dementia of democracy. This dementia is the profound belief held by the average North American that the multiplication of national moronity expressed through the ballot is the collective approach to divine omniscience in the solution of all of our national problems.

Every citizen of this Continent wants a higher standard of living for himself and his children.

Every citizen on this Continent wants guaranteed social security from birth to death.

Every citizen on this Continent wants to toil less and consume more.

Every citizen on this Continent knows that this Continent has the men, the machines, and the materials, the resources and the climate to provide economic certainty for every citizen, and to distribute abundance to all.

Abundance cannot be produced at a price; social security cannot be purchased; human toil cannot produce the volume of physical wealth necessary for a higher standard of American living—only a technological orchestration of the men, machines, and materials of this Continent can produce and distribute abundance for all.

The operational problem of Continental America is unique. It has no precedent in the life of man. There is, and can be only one solution—the technological application of physical science to the means whereby we citizens live. All political parties in the United States and Canada that promise the people security, abundance, and a higher standard of living are practicing national fraud and deception, and they are liars by the clock. The citizens of this Continent must realize that scarcity and poverty, crime and malnutrition, politics and disease are but natural component parts of our antiquated pre-technological social structure.

We cannot eliminate crime because crime is the illegitimate stepchild of business and politics. Business and politics could not run without crime. No employer and no labor union wants to abolish unemployment, for if everyone were employed, labor unions would be unnecessary and employers could not wield the power of discharge. We cannot cure the physiological syphilis of our individual citizens, because a healthy citizenry would be poor business for the medical profession. We cannot cure the physiological syphilis of the citizens of this country as long as our national structure is pervaded by the social syphilis of business. We cannot achieve the abolition of scarcity and poverty, and the inauguration of abundance under the mockery, the deception, and the fraud of any form of national political administration.

Technocracy contends that when the march of events across this Continent compels Americans to mandate a higher standard of living for all, they will abolish democracy, the Constitution, political government, business, the financial and monetary system, corporate enterprise, and labor unions. All of the paraders on our national scene will be relegated to historical antiquity, and why not!

Technocracy is the only organization on the Continent of North America that has the vision, the intelligence, and the guts to face the physical facts of the operational problem of this Continental area. Technocracy is the only organization in America that is immune to infection from the social syphilis of business, and its paresis of politics, and that is unafflicted by the dementia of democracy.

●

TOTAL COMPENSATION OF EMPLOYEES, U. S.

(In Millions of Dollars)

Industrial Groups	1929	1937	Percent Change
Agriculture	$1,313	$742	—43.5
Mining	1,508	1,197	—20.6
Manufacturing	14,770	13,381	— 9.4
Construction	2,722	1,314	—51.7
Transportation	4,886	3,833	—21.6
Electric light, gas	500	498	— 0.4
Communication	707	610	—13.7
Trade	8,079	6,211	—23.1
Finance	2,531	2,228	—12.0
Service	6,565	5,527	—15.8
Miscellaneous	2,197	1,877	—14.6
Social Security		923	+
Other labor income	937	1,117	+19.2
Total Industrial	$46,715	$39,458	—15.5
Government Groups			
Federal Government	1,398	1,918	+37.2
State governments	342	469	+37.1
City governments	1,167	1,102	— 5.6
County, township, etc.	376	396	+ 5.3
Public education	1,511	1,525	+ 0.9
Work-relief wages		1,860	+
Total Government	$4,794	$7,270	+51.6
Grand Total	$51,509	$46,728	— 9.3

—National City Bank of New York.

In the Field

Around the Continent

Traditionally loathe to accept change, New England is beginning to demonstrate its Americanism by accepting Technocracy as the only American movement; and throughout the area, from New York to the Canadian border, a ferment has been working. Forerunner in this area is Section 1, R. D. 8342 in Mansfield, Mass., which now publishes a monthly bulletin for its members.

In Toronto, Ontario, a young but thriving group is working for its Section charter, and when established will act as a co-ordinator and organization point for the numerous adherents of Technocracy in the province.

No specific organization campaign has yet been conducted in the South, but outposts of the Organization are achieving appreciable results. In Mississippi and Florida, Section nuclei are forming, and from Texas constant inquiries are received. This magazine, the forerunner of actual organization, goes into all southern states.

The enrollment of new members and formation of new Sections in Ohio during recent months has been spectacular. In the large industrial centers of neighboring states—Pittsburgh, Detroit, Chicago —new Sections are being formed. In rural Indiana and Illinois voluntary Organizers are at work.

From North and South Dakota, Nebraska, Iowa, Kansas, Minnesota, and Oklahoma comes a new stream of inquiries. Organization goes forward in several places, including a new group in the Tri-cities. In Wisconsin, old Sections assist active organization in Milwaukee.

Activities described in a monthly letter published by Section 1, R. D. 10652 of Saskatoon, Saskatchewan are: Technocracy display at Saskatoon Exhibition; short wave communication from North Battleford; contacts in 13 places made by Regina; new Pangman group formed by Moose Jaw; many public meetings; new Organizer at Parkerview; ten other places where organization is proceeding, etc. And in Manitoba and Alberta? Likewise!

In British Columbia, a busy Vancouver committee spent the summer preparing a 25-meeting organization tour of the province which took place in September. Seven officers of the Organization from Vancouver, New Westminster, and Victoria travelled 2,000 miles in two official Technocracy-grey cars. As an immediate result of their efforts, 16 new study classes were formed and many applications for membership received. So enthusiastic was the welcome given to the tour party at all points that plans are already being made to repeat the venture next year. Other areas will doubtless follow suit.

From Phoenix north to Coeur d' Alene, Idaho, a network of Sections, including Las Vegas, Nevada; Salt Lake City, and Ogden, Utah; and up into Great Falls, Montana, is carrying the word of Technocracy to all the residents of those great open spaces.

On the coast one can go from Bellingham to San Diego, and in every city and town of significance find the Monad and a Technocracy office. New blood and the experience of veterans in the Field make these Sections fountainheads of Technocracy, and from almost every Section, Technocracy-grey cars pass up and down the coast or out into the neighboring states across the Continent. The west coast is 'going to town.'

A MAN AND A MILLION SLAVES

(Front Cover) The solitary engineer and the power unit are symbolic of what civilization could be on the North American Continent—design, function, control, machines working, man supervising. If this is correct the Price System is doomed. (Rittase Photo)

SYMMETRY AND FUNCTION IN STEEL

(Back Cover) View shows a 500,000 gallon elevated water tank at Fresno, California. This tank is 65 feet in diameter and has a range in head of 25 feet. (Chicago Bridge and Iron Company Photo)

TECHNOCRACY

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Official Literature

Pamphlets

America Must Show the Way ..... 10 cents
The Mystery of Money ..... 10 cents
Introduction to Technocracy ..... 25 cents
Science vs. Chaos ..... 10 cents
Technocracy in Plain Terms ..... 5 cents
The Energy Certificate ..... 10 cents

Periodicals

Technocracy, 155 East 44th St., New York, N. Y.; 15 cents, $1.50 for 12 issues, $1.00 for 8 issues.
Technocracy Digest, 307 W. Pender St., Vancouver, B. C.; 10 cents, $1.00 for 12 issues.
Eighty-One Forty-One, 438 The Old Arcade, Cleveland, Ohio; 10 cents, $1.00 for 12 issues.
The Technocrat, 154 W. 12th St., Los Angeles, Calif.; 10 cents, $1.00 for 12 issues.
The Section Post, P. O. Box 1003, Portland, Oregon; 10 cents, $1.00 for 12 issues.
The Foothills Technocrat, 305 I. O. O. F. Bldg., Calgary, Alberta; 10 cents, $1.00 for 12 issues.
The Northern Technocrat, Box 371, Edmonton, Alberta; 10 cents, $1.00 for 12 issues.
The Southwest Corner, 964 Fifth Avenue, San Diego, Calif.; 5 cents, 50 cents for 12 issues.
Technocratic America, Technocracy Inc., R. R. 2, Box 524, Fontana, Calif.; 5 cents, 50 cents for 12 issues.
The Prairie Technocrat, 342 Main Street, Winnipeg, Manitoba; 5 cents, 50 cents for 12 issues.
The Desert Salute, Box 123, Hinkley, Calif.; Gratis.

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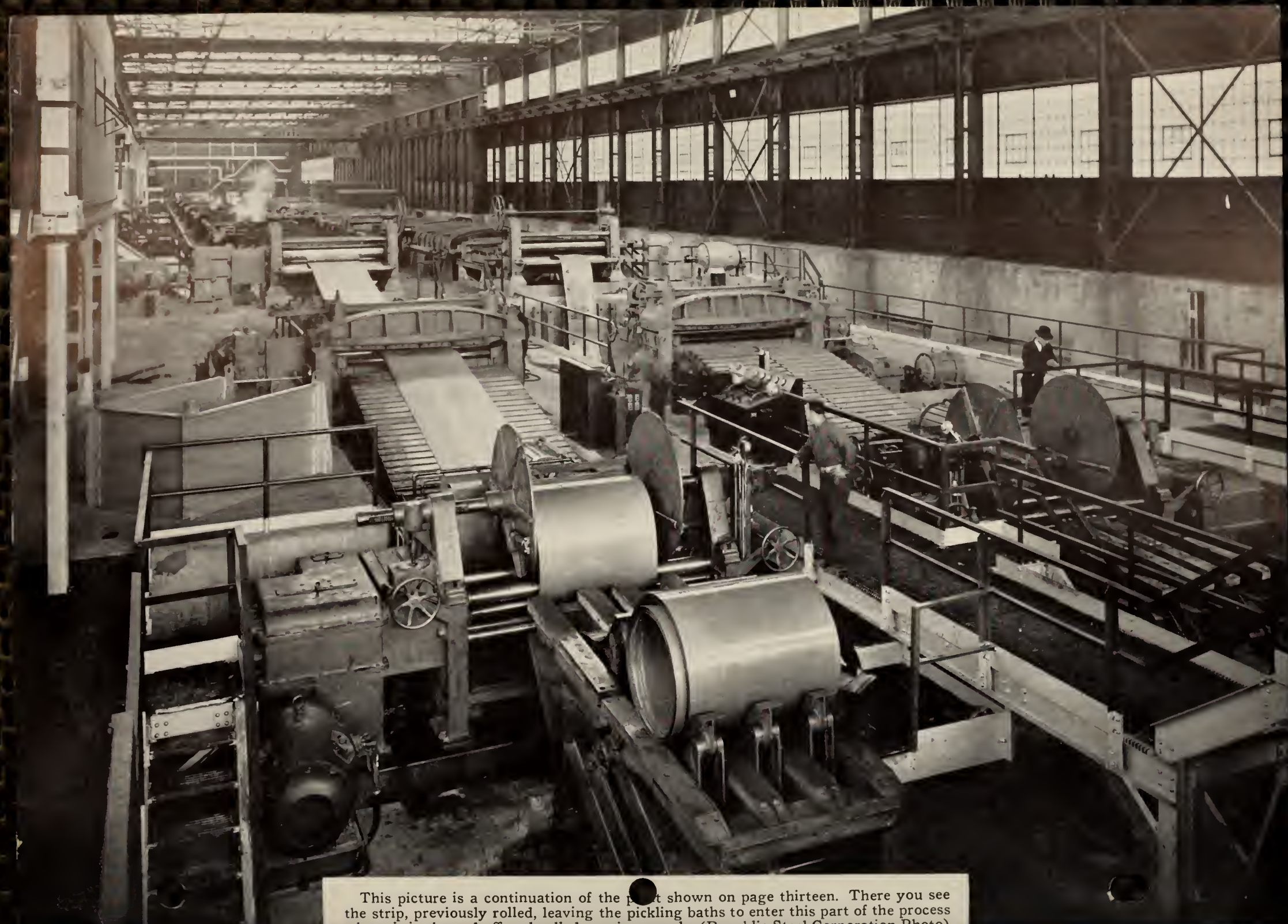
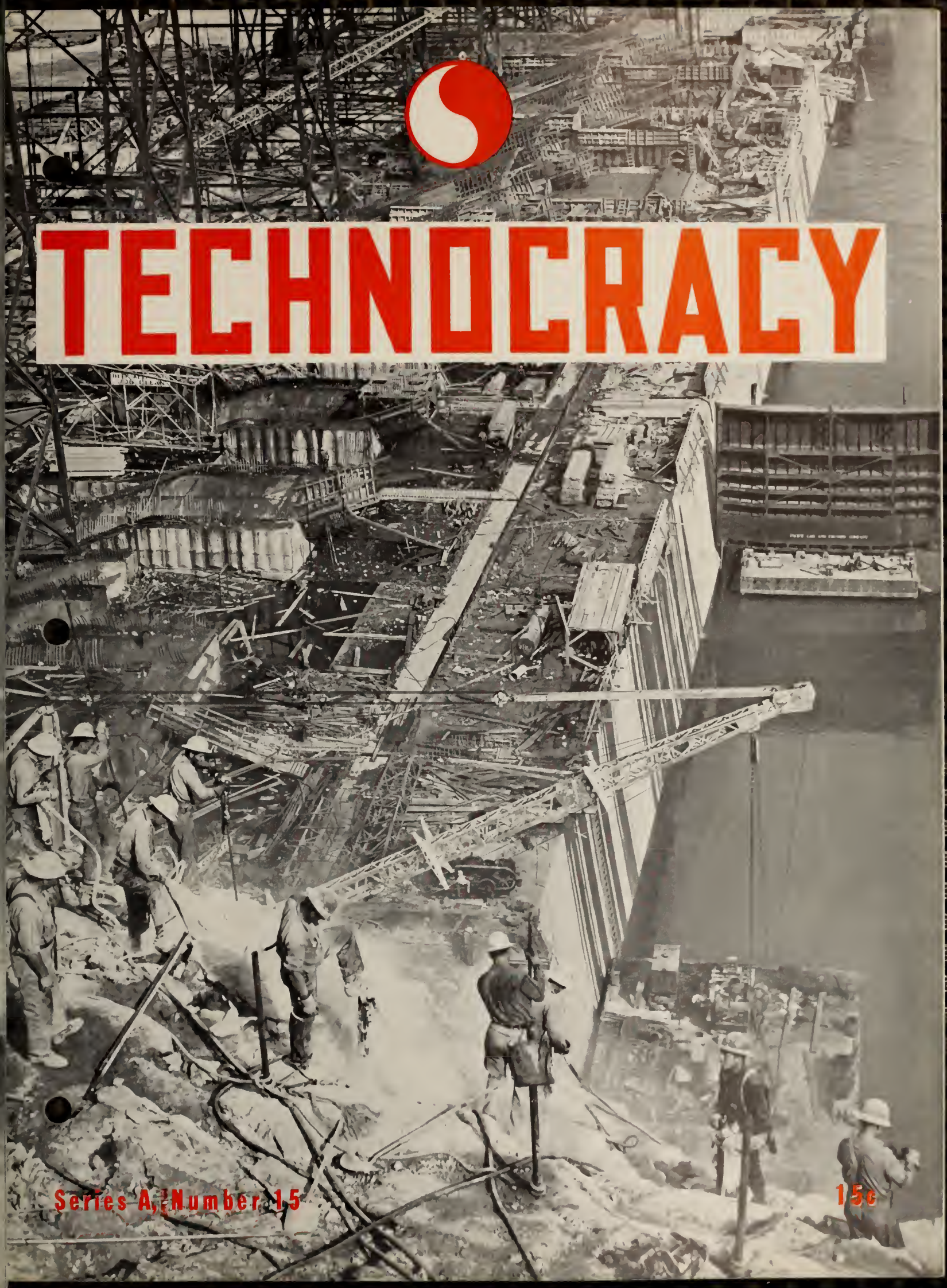


This picture is a continuation of the p[illegible]t shown on page thirteen. There you see the strip, previously rolled, leaving the pickling baths to enter this part of the process where it is sheered off and rolled on giant spools. (Republic Steel Corporation Photo)



TECHNOCRACY

Series A, Number 15

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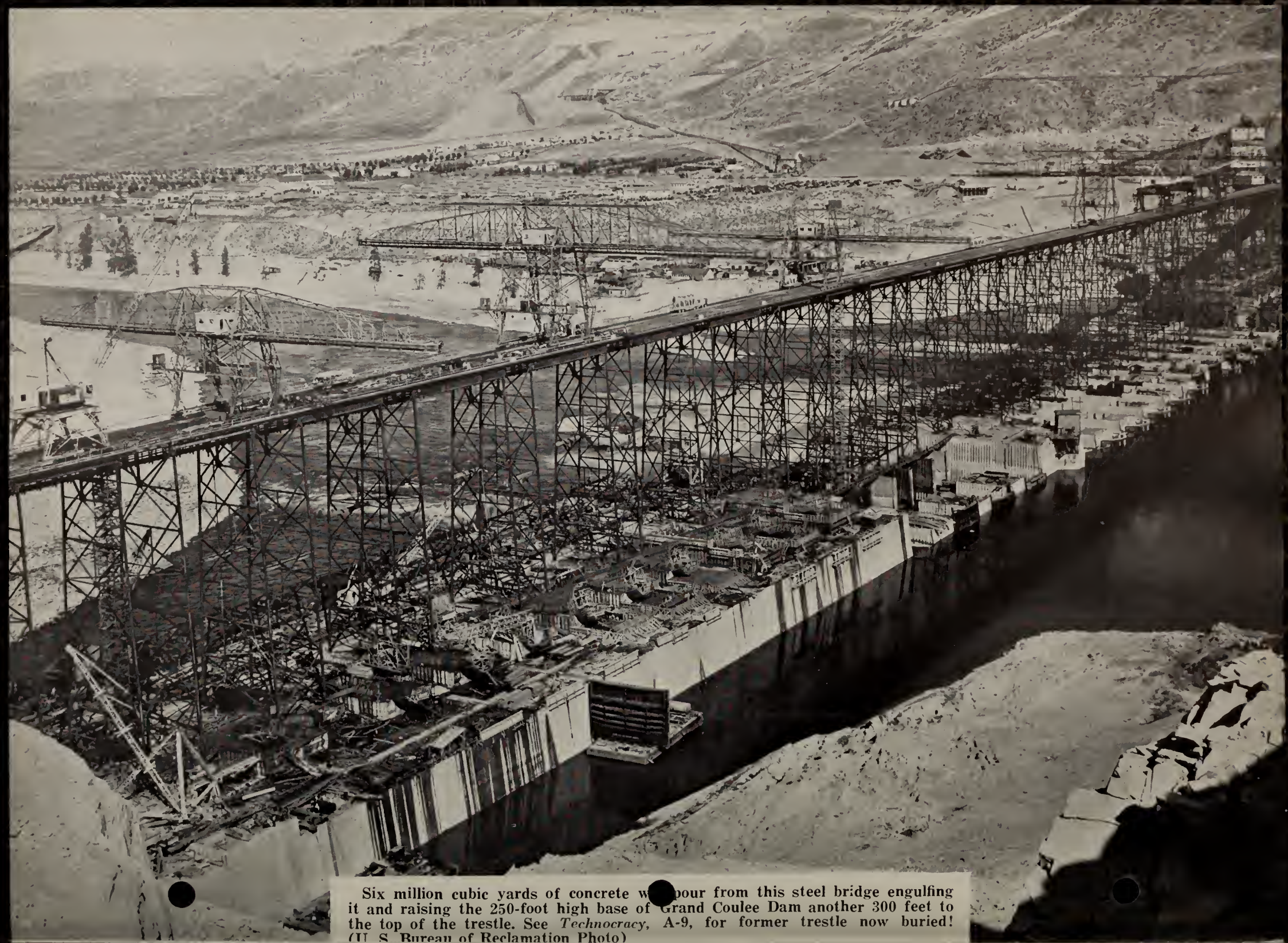


Six million cubic yards of concrete w[illegible]pour from this steel bridge engulfing it and raising the 250-foot high base of Grand Coulee Dam another 300 feet to the top of the trestle. See *Technocracy*, A-9, for former trestle now buried! (U. S. Bureau of Reclamation Photo)

TECHNOCRACY

The New America

OFFICIAL MAGAZINE OF TECHNOCRACY INC.

Science and Society

By Howard Scott

Director-in-Chief, Technocracy Inc.

THREE hundred years ago the march of science began in the western world. Since that time western civilization has carried the culture of the occident and its enterprising ways to the far corners of the globe. For two hundred years Europe was the wellspring of scientific learning. Then a change of emphasis began to occur. For here, on the Continent of North America, were found conditions of growth more endemic to the technological application of physical science than on any other area of the globe.

Man, in his migration to America, imported the beliefs, customs, and ways of living of the best and worst of Europe along with some slight Asiatic intrusions. Most of the customs and techniques of living brought to this Continent from other lands were courageously planted here with great difficulties and assiduously cultivated, only to die. Others of the imported procedures took root but developed into obnoxious weeds within a few generations.

Here in America science has developed its tools and has made the greatest technological application of its scientific procedure. The technological application of physical science to the means whereby human beings live is more extensive on the Continent of North America than the combined application of the rest of the world. But this tremendous social application of technology has not come about from the planned intentions of the scientist, technologist, or engineer. It has resulted from the rapid exploitation and expansion of the resources and equipment of this Continent under the chiseling incentive of our Price System.

Science is the methodology of the determination of the most probable. Technology is the large-scale application of physical science to the processes of production and distribution so as to achieve continuous mass production with a minimum of human effort combined with the highest productivity per unit of extraneous energy consumed.

Technology pervades America. Every scientist in his field chalks up further developments with greater precision. But let this be recorded: Here on this Continent where science has achieved its greatest application, where technology has driven these developments to greater depths and reared them to greater heights than in any other part of the world —here on this Continent, science is in conflict with society. Science and technology have gone so far that the present social structure of the North American Continent is facing its debacle, its elimination. Nowhere else in the world today is science in militant conflict with the social structure under which it survives.

Surveying the Continent-wide application of technology, one would assume quite naturally from the evidence that the scientists, technologists, and engineers of this Continent were cognizant of their position in the greatest social struggle that has ever occurred in the history of man—that they should face this technological problem which they have created. But such is not the case, for nowhere on this great Continent is there to be found any recorded evidence that any organized body of scientists, technologists, or engineers have even begun to formulate the problem, let alone ascertain the solution of the problem of science and society.

Our scientific and engineering societies have passed resolutions and have made speeches on the place of science in the social mechanism; but no scientific body on this Continent has proposed anywhere, at any time, to any group of scientists, technologists, and engineers, that the problem of applying science to human society be undertaken as a culmination of the unidirectional progression of all of the divisions of science into the science of social phenomena.

The development of science has been piecemeal, as in the fields of physics, chemistry, biophysics, geophysics, astro-physics, and electro-mechanics. The developments

in these departments have proceeded apace with certain overlappings. Each division has been helped onward by the broad exchange of the knowledge of all fields; but as yet the coordination of all divisions of science into a Continental application to the social structure has not been undertaken by any recognized organized group of scientists.

Scientists, as a body of men, have conducted their pursuit of the determination of the most probable with more fortitude and diligence, with more patience and less reward, than any similar number of men. Science has a long list of casualties. Science has its martyrs. But today on this Continent, scientists and their work are popularized as the modern genii. They are accorded national and international publicity. The press of the United States and Canada has made the public 'science conscious.' It has created a 'reader interest' and a 'news market' for science and its developments. The people of this Continent are avid for more scientific and technological information. The application of science in its technological developments is the greatest news and pictorial presentation of the day. The people of this Continent want more science and more technology. They want it now, and not in some far distant mythical future. Has any organized scientific society proposed to fill this need? The answer is, 'No.'

The Prostitution of Science

The scientists, technologists, and engineers of the United States and Canada receive economic benefactions in their salaries above that of the share cropper and the millions on relief. Their professional standing and their economic differential have obtained for them a social prestige which elevates them, not as scientists, but as citizens, above the common herd.

In August, 1914, Europe went to war. The available man power of the belligerent countries was mobilized to carry death and destruction to the enemy. The armed forces of every belligerent country were blessed by the resident Christian church, God was conferred with, and victory was beseeched by the clericals of each belligerent so that defeat would surely come to the enemy. The scientists of the Allies and the scientists of the Central Powers became as patriotic as the churchmen, and the aid of science was enlisted by each side so that their war could be more scientific than the enemy's. The scientists of Germany signed political resolutions for the purpose of public propaganda charging the Allied governments with being the aggressors in the war. Most of the scientists of Germany signed the document. True, there were a few who refused to sign and who, like Dr. J. I. Nicholai, got fortress instead of scientific and social prestige.

The scientists of the Allies were not one whit better than those scientists of Germany who signed their patriotic round-robbin. The War of course did undoubtedly hamper scientific progress and the free interchange of scientific information, and the scientists of the United States and Canada and of Europe consented without one single organized objection to the use of science in the greatest social futility in history.

Surely organized science could have learned its lesson from the World War! Science has gone on since then and has made a new war inevitable. Science has moved on to a greater order of magnitude. The individual scientist, technologist, and engineer is in much the same position, as a citizen, as he was in 1914. His ability as scientist, technologist, and engineer is more enhanced today than ever, but it still falls far short of the 'vision' necessary to apply science to the social order. The social conditioning of the scientists, technologists, and engineers of this Continent to the *value prestige* of this Price System has brought them to the sad and sorry state where as workers in the field of specialized science they are the gods of this age, while as citizens they emulate the louse.

Can any scientist, technologist, or engineer claim allegiance to the dictates of science when he joins a political party, a chamber of commerce, or a Rotary Club? Is there anything scientific about democracy, communism, or fascism? Can one honestly be a competent practicing scientist, technologist, or engineer and at the same time be a militant member of the republican, democrat, socialist, communist, or fascist party? Can it be possible that professionally one can be a scientist, while socially indulging in the astrology of politics and believing in the phlogiston of business? Can the bacteriologist and the chemist professionally develop more efficient means for the eradication of physiological syphilis in the human being, while as citizens they contribute to the perpetuation of the social syphilis of business which prevents the Continental application of their scientific remedies?

The 'A. F. of L.' of Scientists

Lo and behold! The American Association for the Advancement of Science has officially gone stool-pigeon for the status quo in these United States. The present head of this august body is Dr. Wesley C. Mitchell, an economist. How in hell did an economist ever become a scientist and become elected as president of the American Association for the Advancement of Science? Wonder of wonders! Economics, the pathology of debt, becomes elevated to the status of a branch of science. If one can call the evaluation of chiseling a branch of science, then economics is certainly a branch of science.

Dr. Robert A. Millikan and Professor Henry Norris Russell pronounced 'a declaration of scientific independence' in their American Association resolution of 1933. They declared, as scientists, for *freedom* and *liberty,* but they did not propose to apply science to the social order. We might remind the eminent scientists of this country that no American can eat liberty and wear freedom.

Karl Marx coined the slogan of the revolutionary proletariat. He said: 'Workers of the world unite!' But alas poor Marx! The only thing for which the workers of the world outside of this Continent can unite for, is for more of the same. The August 20th issue of *Science News Letter* carried a lead article, 'Scientists Unite!' In defense of democracy the author of this article says: 'Democracy is the child of science.' Is such a bastard offspring really possible of conception? In the next paragraph the same author says: 'Making the world safe for science will make the world safe for democracy, a task at which warfare was a failure.'

In 1917 Americans were propagandized into the World War on the slogan, 'Make the World Safe for Democracy,' and now the scientists of the world want to unite to make democracy safe for the world. Science has nothing in common with democracy, fascism, or com-

munism. Science is antithetical to the moral philosophies of chiseling that underlie these premises of social conduct. Do the scientists of America propose to sell science and America down the river in order that this Price System of disadvantage and scarcity may remain long in the land? Do the scientific and engineering bodies of the United States and Canada propose to endorse and support the status quo? Are these scientific bodies proposing to underwrite publicly the social syphilis of business and its paresis of political government, so that national chiseling may continue in this land of the free and the home of the brave? Do the scientists, technologists, and engineers of this Continent realize that the technological application of physical science to the means whereby people live on this area has made government by science on this Continent imperative and inevitable?

The General Staff of the New America

The scientists, technologists, and engineers of this Continent are the general staff of the Technate of America, whether they like it or not. By their work ye shall know them, and the technicians of all branches have produced the works that are bringing about the demise of the Price System. Technocracy directly asks every scientist, technologist, and engineer: Whom are you going to serve, science or mammon, abundance or scarcity, Technocracy or chaos?

Many of you who read this may feel that as workers in these three fields you are still privileged to make up your minds as individuals. You know that as scientists you can arrive at a conclusion only from the closest approximation of observations; but, as citizens of this Continent, you prefer to think that you can arrive at social conclusions in this technological age by the anarchy of opinion. But such is not the case, and you had better re-examine the observable data of the social conflict of this Continent today.

The march of technology on this Continent is going to compel the arrivation of the first mass movement in the history of man. For as technology eliminates human toil and ruins all the values of scarcity by the production of abundance, all of God's children are going to get wings and will all go in the same direction at the same time.

There are many minorities battling for their place in the sun in the social structure of this Continent. The scientifically trained is one of the smallest of these minorities. And yet this Continent's rendezvous with destiny ironically prescribes that this scientific minority will become the substance and the framework of the majority. It will be the nucleous around which the mass movement of this Continent will consolidate its forces for the integration of this Continent into one geographical entity—one Continental control, one technological organism, one country, one people—one and indivisible.

Technocracy points out to the scientists, technologists, and engineers of this country and this Continent that they will be the minority which shall become the director of the mass majority, and ironically, the annihilator of all minorities.

Continuous Process for Artificial Fiber

Rayon by the Mile!

THE year 1938 has seen technology take terrific slices from agricultural and industrial man hours per unit figures, it has seen it carve down the grand total of man hours, and it has seen, in spite of shorter hours, still greater cuts in the dwindling ranks of the employed. In every Technocracy magazine one may find numerous instances of new and improved processes, the development of which in the near future will be accompanied by the abolition of hundreds of thousands of jobs.

Now comes rayon of the textile industries (long since relatively highly mechanized) to parallel the productivity of the continuous strip steel mill. In Painesville, Ohio, the Industrial Rayon Corporation is building an eleven and a half million dollar plant for the continuous process production of that lustrous, material, rayon.

Over Eight Hundred Times Faster

To make a thread in the new process, pressure will eject the viscose fluid in forty tiny streams; whirling spinning reels will then drop the streams through bleaching and treating solutions and twist them into a single thread. Uninterrupted process, size, and speed! The new plant will contain 96 continuous spinning units, each one of which will spin 100 threads at once. Nine thousand six hundred threads at one time—without end! Only six and one-half minutes instead of the former 90 hours will be required to convert the sticky fluid into the finished thread—830 times faster! This plant will add 12,000,000 pounds to the 300,000,000 pound annual production of the United States.

Forty Thousand Farms

By L. M. Dickson (CHQ)

THE Grand Coulee Dam on the Columbia River is the greatest structure on the face of the earth. For five years a small force of men and a great concentration of machinery have worked in the rugged surroundings of central Washington to place across the river a wall of steel and concrete which will be three times greater than the Great Pyramid of Cheops. Viewed from the air in its setting of the canyon the job loses its vast magnitude, and to properly envisage it one must listen to its roar of trucks, traveling belts, tractors, drills, concrete and gravel plants, excavators, and blasting; see the movement of mountains of material; and witness the placement of quantities of steel and concrete that would make all the fortress lines of Europe look like a child's playthings.

For here on this site, the forces of science, engineering, and technology on this Continent have been marshalled to harness one of the world's mightiest rivers. When the job is completed a man-made lake, 151 miles long, will stretch up to the Canadian border. Some of the imprisoned water will escape through enormous penstocks to turbines and generators which will have a capacity of 2,700,000 horsepower of electrical energy—more than three times as much as the capacity of giant Dnieprostroy in Russia. Here on this site, giant pumps will suck the water up into the huge basin of the Grand Coulee, ancient bed of the river, dry since the Ice Age. And here, from the storage of Grand Coulee, will flow the water that will eventually irrigate 1,200,000 acres of parched Washington land. Surely a worthy project! Surely one conceived by the flowering genius of man, and worthy of the approbation of all mankind!

Five years ago the engineers started actual construction work. A long and difficult task of planning, surveying, and designing had already been done; the blue prints had been prepared, and into a thousand corners of industry the long arm of the project, needing a multiplicity of supplies, began to reach—for as well as being a great engineering project, this was to be a great relief project for workless men and for business and industry. Men and equipment arrived on the scene. Through the towns of Washington, Oregon, and Idaho long trainloads of supplies rolled in from all parts of the Continent, and the job of taming the Columbia was under way.

Twenty-two million cubic yards of material were removed from the site of the dam; the river was shifted in its bed; a city was built; blasting, digging, drilling, conveying, and mixing proceeded by day and by night; and hour by hour, the foundations of the dam rose higher, burying the great steel structures from which the concrete was poured. At last a new mountain lay across the river bottom. Over six million cubic yards of concrete were poured, the base was finished, and in it was more concrete than in the entire structure of Boulder Dam—a base over 4,000 feet long, 250 feet high, and 500 feet wide at the bottom.

Thus was history made. The world's then greatest structure stood. It had been done by a skeleton force in five years—not by 100,000 men laboring 20 years; but the job was not yet finished. For upon that mass today, another six million cubic yards are being laid. The dam will be raised to a height of 550 feet. Many new marvels of technology are being introduced. A two-mile traveling belt with 20,000 feet of auxiliary belts will carry a continuous load of 2,000 tons at the rate of 450 feet a minute. The project, itself a creation of technology, is creating more technology.

Visitors throng the site of operations, thrilled in this display. Nowhere else on the face of the earth can one see engineering skill demonstrated so strikingly. Although one hears some grumbling of the financial cost of the enterprise, the full approbation of the American is expressed in his praise of Grand Coulee as an engineering job—one which could only take place on this Continent. He looks at tons of concrete swinging through the air; he looks at the great wall rising higher and higher, and he thinks that this is grand and marvelous. It is a big job; it is technology; it is America.

The Sabotage of Technology

Technocracy asks: What is the Grand Coulee project to what it *might* have been? When the Grand Coulee project is completed, when its relief benefactions have ceased, what will it contribute to the life of America?

Technocracy salutes the engineers and technologists, and their skill and ability which are creating this structure with all its appurtenant works. The design of the structure itself is in accordance with the best known engineering practice, and the execution of the design is an example of the technological efficiency which this Continent is able to hold up to the world. The engineers and technologists have done their work well as always. The technological results of the Grand Coulee will contribute, as all technology does, to the coming social change on this Continent. The power to be generated at the power plant will be available to the citizens of the New America over Continental areas—a vital and necessary contribution to the high-energy civilization of this Continent. But after power and technology, what?

Unfortunately, technology did not have complete control of the construction of the Grand Coulee project nor will technology have control of its resultants. The Grand Coulee project was authorized by political demo-

cratic government in these United States as a relief measure—both immediate and long term. The project was put through as a means of creating more employment; of stimulating business; of watering parched lands so that the starving farmers of other parched lands could be saved; of creating power to pump water and to sell—cheaply for further relief.

Technocracy states that the Grand Coulee project was fathered by political government and as such was not designed as an integral part of the entire Columbia River system or as a part of a Continental hydrology. The entire works, although technologically executed, was politically inspired, and financially restricted, and as a unit in an integrated hydrological system it is a prime example of colossal waste and Continental sabotage.

The dam will be built to elevation 1,311 feet above sea level. Behind this, a lake will run up to the Canadian border 151 miles away. This elevation of the top of the dam is not sufficient to provide deep water navigation of the Columbia River up into British Columbia, where at Trail the river elevation is 1,367 feet, and at the Arrow Lakes 1,406. Nor will it provide navigation into the other great tributaries of the river. A higher dam with provisions for hydraulic lift locks would have permitted large freight-carrying vessels to travel into the heart of B. C., Washington, and Idaho; but no provision whatever was made for this low energy-cost transportation. Why was the dam not built to a higher elevation so that the tremendous resources of these areas might be made easily available to future North Americans?

Another way of asking the same question would be to say: Why does the reservoir not run past the Canadian border? And there you have the answer. The United States government states that: 'It (the lake) will extend up the Columbia River to the Canadian border, the elevation of which determined the height of the dam....' Not physical limitations, but political interference and the sanctity of property rights! Thus because the water cannot be backed up beyond the Canadian border, the technology and resources of this Continent are sabotaged. The Price System on this Continent is guilty. When the Columbia River is made navigable for deep-water transport it will only be done at a terrific cost. Even in the case of the Bonneville Dam lower down the river, the tremendous expenditure involved in the creation of locks, which are inadequate, is lost. Only a technological administration of a Continental hydrology under one complete direction and control working on a Continental basis can rectify these and other gross errors made with our navigable waterways through the interference and connivance of political government and the Price System in the United States and Canada.

Salvation and More Sabotage

Then comes irrigation. One of the prime considerations of a benevolent government in this twentieth century is the partial care of its ever present poor. So the technologists are constructing 12 of the world's largest pumps. These pumps will have a total working capacity of 16,000 second-feet of water, and each one will be powered by a 65,000 horsepower motor. The water will be raised from behind the dam and pumped into the great, dry, natural storage tank of the Grand Coulee 280 feet above the surface of the water behind the dam. Marvelous technology will go into these pumps, but the functional design of the project as a unit of a planned hydrology would have obviated their necessity, and the 780,000 horsepower could have been used more usefully. A relocation, and construction of the necessarily greater dam would have permitted the water to flow direct to the bulk of the proposed irrigation project by the force of gravity!

Obviously the height of Grand Coulee Dam at its present location makes the installation of these tremendous pumps a necessity if we are to irrigate 1,200,000 acres of land. We see but one more example of technology being wasted and dissipated by the incompetence of the Price System, and we can but turn to the irrigation project itself where another display of incompetence is revealed.

The water pumped into the Grand Coulee is to be used for the irrigation of 1,200,000 acres of Washington land—fertile land, although there are millions of acres of fertile land elsewhere on this Continent capable of producing more than enough for all our needs. On this rich, irrigated land the political expediency of the Price System will create up to forty thousand farms—forty thousand farms so that forty thousand American families may return to the soil, and eke out a living on 30-acre plots by the sweat of their brows. Surely a worthy project! Surely it is worthwhile that the greatest demonstration of scientific, technological, and engineering ability should be marshalled to create Grand Coulee Dam so that the farmers blown from the soil of the Middle West can be rehabilitated and planted on backyard farms to toil like the coolies of China!

It is proposed that the farmers be established on these lands with the assistance of low-cost government loans in 'modern' houses, filled with gadgets to be driven by the power from the dam. They will have labor-saving gadgets in their houses, and they will have labor-saving gadgets on their farms too—gadgets built to function on 30-acre farms. And with these gadgets, these New Deal farmers will raise truck garden vegetables, cereals, chickens, pigs, and cows and they will remain on the soil and be happy and self-supporting; and nearby the great Grand Coulee Dam will stand, producing the water and the power for this return to medieval ways with modern trimmings. Surely, if the giant dam can smile, it will crack its concrete sides.

The land to be irrigated lies south and east of the Big Bend of the Columbia River in an area 60 miles wide by about 85 miles long. Most of this land is now owned by individuals and corporations, but no speculation will be allowed and it will be available to bona fide settlers. Individuals will be allowed only a limited acreage, and homes will be provided for 25,000 to 40,000 people on the land.

The Further Application of Technology

Technocracy condemns this plan as a further sabotage of the resources and technology of this Continent. Technocracy, which proposes that things be done with a minimum of human labor so as to produce a maximum of wealth, would apply the technology which was used in the construction of Grand Coulee Dam, not only to the entire hydrology of the Continent, but to all of the pertaining end-products—the use of the rivers; the transmission and distribution of the power; and the use of the lands affected by the control of the water. To Technocracy, the job would not begin and end

MORE FACTS ABOUT GRAND COULEE DAM

The dam is of the straight gravity type, 4,300 feet long at the crest, 500 wide at base, 550 high, 30 thick at top, and covers 30 acres. **The elevations** in feet are: river bed 910, low water 933, top of dam 1,311.08, floor of Grand Coulee 1,500. Almost one million acres to be irrigated lie below level of Grand Coulee. **Construction** required 12 million barrels of cement for manufacture of 12 million cubic yards of concrete. Excavation will exceed 22 million cubic yards, almost all transported on belt conveyors. A 3,000-foot temporary coffer dam was built in 90 days. **A spillway** section 1,650 feet long will form a waterfall twice as high as Niagara with a capacity of one million cubic feet a second. The dam will contain 2,000 miles of one-inch steel tubing plus two and a half miles of 8½-foot tunnels, and eighteen 18-foot penstocks. **Power:** two power houses, each to contain nine generators of 105,000 kilowatts capacity. Water from a 275-355 foot head will pour through each turbine at a rate of 141 tons a second.

with the construction of the dam and power house. *That* would be only one link in a chain of functions for the attainment of a maximum of efficiency on this Continent.

Technocracy proposes that the Bureau of Reclamation of the United States government make not forty thousand, but only three or four farms of this area; and that these areas be worked agriculturally by methods and equipment as large and competent, relatively, as the equipment which was used in the construction of the dam. Technocracy therefore proposes that the lands be thus divided into suitable mass production areas. The operators, mechanics, and soil chemists engaged upon the function of producing crops from these areas would be housed in convenient centers in human residences which no architect ever dreamed of, houses that would be a horror to the architect but a joy to the engineer and the people who lived in them, houses constructed of modern materials by the most advanced technological methods.

Technocracy proposes that the most advanced agrobiological methods of crop raising known be put into operation on these lands—methods which will raise 225 bushels of corn to the acre, 171 bushels of wheat, 395 bushels of oats, 1,330 bushels of potatoes, and 53 tons of sugar beets to the acre! These crops can be taken out of the soil under advanced agrobiological methods under perfect conditions, as has been proven.* The handicraft stage of agriculture on this Continent is due to pass into limbo. Technocracy asks: Why not do it now? Modern agrobiologists look upon plants merely as mechanisms for converting certain inorganic substances—mainly phosphates, potash, and nitrogen—known as plant foods, into forms both useful as foods and as raw materials for industrial uses.

Technocracy proposes that power equipment, large enough to handle these enormous crops, be installed for these one and one-quarter million acres under the direction of competent mechanics and operators. Technocracy proposes that these farms be laid out, without obstructions in the way of fences and clustered farm buildings and in conformance with the irrigation canals, so that the equipment may have adequate scope for operation, going out like an advancing army and returning, each foray completing one working shift for the crew handling the equipment. Technocracy proposes that, when feasible, this equipment be operated on a 24-hour basis. Agricultural technology today, stands ready and able to provide the equipment which will do this type of work—giant tractors, new-method plows of great capacity, all sorts of cultivating and fertilizing equipment. Technocracy proposes that the newly developed automatic mechanical harvesting equipment for various crops be put into operation on these gigantic farms.

Technocracy states that if this were done *more* would be produced with *less* human toil; and is this not what business and government is advocating? Are not all of the agencies of 'human welfare' crying for a greater abundance? Are not all of the political parties doing likewise?

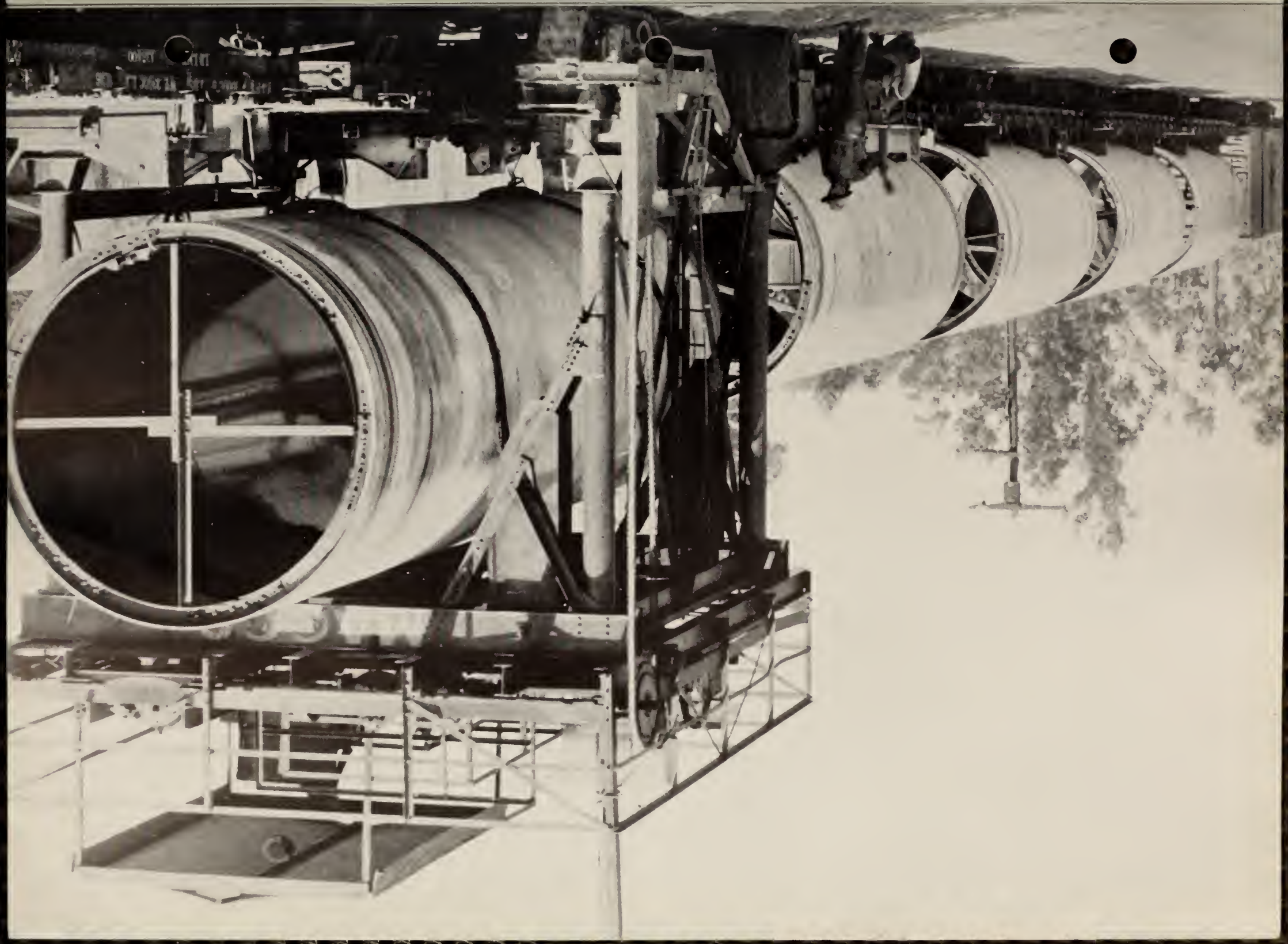
Yet under the Price System these things will not be done with the Grand Coulee irrigation project. If these things were done, forty thousand American families would not be reestablished as rugged Americans to eke out a living in glorious independence. The forty thousand families would be on relief; business would suffer from lack of customers; prices would go down still further; business and crime would not have so many patrons. In short, the Price System cannot voluntarily permit the installation of technological methods on a large scale at Grand Coulee or elsewhere on the Continent.

But technology is advancing willy-nilly. Under the Price System it cannot be applied on really large scale projects which will seriously damage the status quo, but within a short time the American people will abolish the Price System in its entirety in order that technological methods may be applied, not just to the Grand Coulee project, but to the social mechanism in its entirety. When that day arrives the misuse of our technology and natural resources will cease, and the American people—all of them—will get *more* for *less*.

* See *Technocracy*, A-7.

'POWER-HANDLING' PIPES

No amount of 'man-handling' would transport and install these gigantic pipes for the Metropolitan Aqueduct in southern California. These pipes will form part of one of man's greatest accomplishments in bringing water to where it is needed. Five pumping plants on the aqueduct system will lift the water a total height of 1,616 feet on its journey from the Colorado River to the coastal plain of southern California. These pipe-sections weigh 18 tons each, and here you see them being taken from the railroad flat cars by a specially designed portable gantry. Compare the twentieth century method of water conveyance to that employed in ancient Egypt, when the fellaheen hoisted his small buckets endlessly from the Nile for a supply of the precious water! But compare his form of government to ours today, and you will see that in that respect, we have not travelled so far! (Metropolitan Water District Photo)



The Twilight of Business

By G. D. Koe (CHQ)

WE ARE not in business for our health. We are in business for the money we make out of it. That was the arrogant boast of the hard-boiled entrepreneur of the gay eighties and nineties of the past century and of the ten thousand years before that, as he stood on the poop of the galley of commerce, gliding into port after port, laden with the spoils of the world.

Business, however, is in business today more often than not for a loss. The once bold entrepreneur is a ghost of his former self, while the proud, richly laden galley of commerce drifts helplessly to the rocks of disaster. How are the mighty fallen and the proud and stiff-necked humbled!

In the halcyon days of commerce the private owner, or even the joint stock owner, could do as he pleased with his own. It was his assured right and unquestioned privilege to trade, barter, or do business wherever and whenever he saw fit; to cease his business and commerce when there was no longer a profit in it; and to conduct his affairs according to the dictates of his own whims and his own fancies.

Today, the business executive finds himself harassed with constitutional statutes, codes of ethics, caveats, labor injunctions, trade union restrictions, and all manner and variety of federal, state, and municipal rules and regulations. The business man can no longer cease his business at his own desire. He is driven relentlessly on by the force of fortuitous circumstance toward the end of all business.

In those early mercantile days, the population was not dependent on the merchant except for luxuries. If he was not there, the population could still find its food, clothing, shelter, and amusements within its immediate environs. When the demand was great enough, the merchant would normally find a profit, but if he failed or went out of business it was the concern of no one but himself.

Regular trade routes in those days, only meant that these routes were followed by a constant or intermittent stream of individual merchants, each trading as he saw fit and stopping or starting as his desire or the opportunity moved him. Laws governing the habits, customs, and manners of the trader were few, even if at times drastic. Governments, rulers, and princes were only interested in business for the revenue they could collect from taxation.

Coal presaged a new era, a different phase of living. The entry of steam into transportation, and the new forms of extraneous energy conversion that occurred some one hundred and fifty years ago, altered the status of the trade route. It became the sea or land lane of the regular common carrier, the lineal descendant of the brigand and the pirate, the muleteer and the privateer, the caravan and the caravel. The new forms of extraneous energy usages enforced a change in the habits of the merchant—a change in the ways of conducting a business. It was no longer simple for the private individual or the amorphous group of individuals of the old joint stock companies to carry on merchandising. The concept of the modern corporation grew out of this predicament. At first a mere cooperative assembly of merchants adventuring in a common field, it became a consolidation of individuals into a corporate identity, wherein the obligations of the individual were limited and he retained his right to retire at will while the machinery of the company went on indefinitely. At the same time, codes of ethics, columns of regulatory edicts, volumes of customs laws, and new trade practices were brought into being.

By Guess and By God

Today, in this fourth decade of the twentieth century, we find that even this situation has changed tremendously. The population of this Continent under the Price System is completely dependent on the merchant for its daily bread, its housing, its clothing, and its amusements in almost every way by which it lives, moves and has its being. This is a condition that has never occurred before in the economic history of the world since the dawn of man. The business man is no longer necessarily in business for a profit; he is compelled to remain in business because that is the only way under a Price System that the people can be supplied and that he himself can get his livelihood. Business is no longer a matter of philosophic freedom, wherein competition decrees the survival of the fittest. It is fast crystallizing into a public utility. This crystallization is a symptom of the arteriosclerosis of the Price System.

The business man has proclaimed publicly that he is a benefactor of the human race. He has asserted that it was due to his foresight, his managerial ability, his acumen, and his willingness to take risks in the hope of making a profit, that the productivity, the machinery, and the unquestioned high living standard of the people of North America has been built up.

The business man has never willingly admitted that this was really due to a concatenation of a large number of wholly fortuitous circumstances. If it had not been for the high fertility of the soil, the temperate climate, the scarcity of aborigines, the comparative ease with which the mineral resources and the vegetative sources

could be obtained, in conjunction with other factors of a like nature, the white inhabitants of this Continent would still be a poverty-infested, fever-ridden minority, supporting a top strata of officialdom, which would come from Europe, stay for a term of office and retire to Europe, as has occurred and is occurring in Asia and Africa today.

Business men, operating 'by guess and by God' under the old rules of free trade and unrestricted competition, have indeed looted this Continent; have built titanic industrial empires and vast financial estates. They have got all they can get by the old ways of freebooting and plunder. Circumstances are forcing them to reform. They are now clothing themselves in halos and white robes and learning to play the harp. There is no greater moralist, no stauncher upholder of ethics, no firmer believer in the respectable and the reputable than the reformed rake, the ex-pirate, or the swindler who now feels financially secure.

The business man of today, therefore, is posing as a public philanthropist. *Factory Management and Maintenance* of August, 1936, states: 'Some companies do make profits. Some of them come pretty close to making high profits year after year. But not all companies, not by any means. The records show that even in *good* years only three-fifths of the companies in the manufacturing industries make a profit. That in *bad* years, only one quarter make a profit . . . the average profit from these eleven years of operation (1923-1933) was 4.2 cents per dollar of sales.' This is a far cry from fifty years ago. It is an admission of defeat. It is the lamenting of the mourners at the sick-bed of merchandising, which is sinking fast into the oblivion from which there is no returning.

The shareholders—and some ten millions of Americans are shareholders—complain that they invest their savings and get little or nothing in return, while the task of finding some other sucker to take over these shares is becoming well nigh impossible. The market for stocks and shares is growing smaller all the time. These shareholders admit that they do not run the businesses that their money is invested in; that so far as management is concerned, they are not even consulted. The old individual owner was both executive and shareholder. The modern executive is a hired man. He may be and probably is a shareholder, especially where the stock is one that is amenable to gambling in its rise or fall on the stock markets, but he lives off his salary. His livelihood depends on his keeping the other shareholders in business.

Baffled Business

Before the Civil War, life in this country was simple. So was our economic system. Trade in goods and jobs was largely local; handicraft methods prevailed. If the common carrier between any two towns went out of business that was nobody's affair but the common carrier's. If he was a land carrier, he could use his horses and wagons on the farms of the community. If he was a sea carrier, he could go fishing or freighting elsewhere.

Since the World War, life has not been so simple, nor is the economic system so naive. The common carrier can no longer go out of business; the needs of the people demand that the government shall not permit this. One can hardly imagine the executive of a railroad company using a locomotive engine to plough a field. The right-of-way of a railroad, the rolling stock, and the shops are useless for any other purpose than that of transportation between two fixed points. The modern passenger liner would make a poor fishing vessel and an equally poor tramp freighter.

Times have changed. Certain forms of business have already become public utilities and many others are fast crystallizing into that form. The business that is a public utility must continue operating whether it makes a profit or not. The regulations governing the operations of merchandising are being forced to be more drastic and more confining on the business executive. The business man complains of too much government in business. He fails to recognize that it is only the handouts from the public treasury that keep him in business at all. The politicians juggle with the regulations, and use the public treasury in the vain hope that they can cure this paralysis of the business structure. Their state of hopeless bafflement is analogous to the tribal medicine man faced with a case of spinal meningitis. Technocracy points out that the Price System, no matter how it is juggled or how often the symptoms are apparently cured, is like the meningital patient, nearing its final end. It is as impossible to retain a Price System and business under the changed conditions as it is to use a locomotive engine for ploughing a field.

Transportation But No Profits

Locomotive engines remind one of the transportation field, so let us examine that type of business. The railroads still supply the most spectacular figures but the steamships, the barge lines, the trucks, the busses and even the pipe lines are in the same position with variations. The Southern Pacific Railroad lost $10,-355,834 in eight months of operation this year (1938). The Southern Pacific trains are still running; passengers are travelling and freight is moving over their lines. They made no money but they are still in business. This is no unusual states of affairs for railroads since the majority of Class I railroads have been operating at a loss so long that their managements would hardly know what to do if they made a profit.

On October 17, 1938, the *New York Times* published a statement covering eleven of the large railroad companies of the United States. That statement showed a loss in eight months of operation in 1938 of about $21,000,000. They made no money but they are still in business. Everyone knows that they are in business because the people of the United States will not, and cannot let them go out of business.

In 1928, out of 2,330 million tons of freight carried in the United States, 60 percent was hauled by railroads, 18 percent by local and highway carriers, 18 percent by waterways, and 4 percent by pipe lines. Four years later, in 1932, the freight volume had fallen to 1,570 million tons. This was very little more than the railroads had hauled in 1928, yet we find that only 44 percent of this freight travelled by railroad, while 32 percent went by local and highway carriers, 17 percent by water ways, and seven percent by pipe line.

The Federal Coordinator of Transportation, who gives these figures in his report, says that the causes of this change were high rates and inferior service on the part of the railroads, and cut-throat competition on the

part of the other forms. Shades of Jack Ketch and Henry Morgan! Who ever heard of such men as Astor, Vanderbilt, Rockefeller Senior, or J. B. Hill complaining of cut-throat competition? They were all past masters at that game themselves. Competition is the very essence of the survival of the fittest. It is fundamental in the Price System. It is the vitals of the motive to supply goods so as to make money.

Is business in business to make money, or is it emulating what it publicly decries, the growing demand for social security? Business in transportation appears to be afraid of itself; it craves protection. The paralysis of the Price System is clearly evident in this field.

On June 1, 1938, no less than 97 companies operating 30 percent of the total railroad mileage in the United States were in bankruptcy. For the first three months of 1938, the railroads that operate 87 percent of the total railroad mileage made no profits. Not only that, but they could not earn their maintenance costs and had nothing with which to purchase new equipment. So badly off were they, that the government of the United States was forced to lend them $400,000,000. In Canada, neither of the two railroads made any profits. Both are maintained by the taxpayers—one officially, the other unofficially.

The railroads of the United States have had another dispute with their employees. They wanted to cut wages and decrease the purchasing power of their staffs. The men threatened to strike, but the government will not permit the men to strike any more than they will permit the railroads to cease operations. President Roosevelt, on September 20, 1938, ordered a committee to frame legislative proposals for a sound transportation system. This means that private business has ceased to function in transportation: that transportation will be kept alive by means of hypodermic injections and intravenous infusions from the public treasury. When the cow doctors of the Price System have to descend to such action, the end of the patient is near.

Reaching Their Final Phase

The general public may claim that this is only a step to socialization of the transportation system: a step that is philosophically but mete and right. But what is true of transportation is becoming true of all business; and what of business when it does become a public utility operated by the government under a Price System? How long can it last then? Let us examine a form of business that passed into this stage some years ago.

Has the banker been in business for himself and to make money since 1933? On March 5, of that year, President Roosevelt summoned a special session of Congress and proclaimed a national banking 'holiday.' A permanent holiday for private business in banking, it has proved to be. On March 9, 1933, Congress gave President Roosevelt dictatorial powers over credit currency and foreign exchange. The banks were permitted to reopen but they were no longer in business for themselves. They were in business as the appointees of the government. Banking became a public utility of the premier class.

When Howard Scott announced in July, 1932, that this would happen, the bankers and their newspaper stooges denounced his statements as absurd. When Howard Scott was proven correct, the bankers and their newspaper stooges kept silent. Later, Howard Scott predicted the drowning of the banks and financial institutions in the sea of their own liquidity. The statements of the banks and the insurance companies issued today show clearly how accurate that prediction was. The government of the United States and the directors of the various banks are keeping up the farce of private banking. They dare not let the public learn of the actual facts for fear of the loss of public 'confidence.' This is the 'confidence' so aptly described by Howard Scott as 'that state of mind desired by every chiseler, wherein the sucker has forgotten the last time he was trimmed.' The banks *are* drowning in the sea of their own liquidity and their own figures prove it. They will stay in business, however, as long as the taxpaying suckers have not been completely sucked dry. Every taxpayer can judge for himself how close that time is.

From the latest report of twelve Federal Reserve Banks as of October 11, as given in the *New York Times,* the following illuminating percentages are derived:

Assets	*Percent of Total*
Cash (including treasury deposits)	80.9
U. S. Securities and U. S. Guaranteed Securities	18.4
Industrial loans (including rediscount paper)	.1
Other assets	.6
	100.0

Liabilities	*Percent of Total*
Deposits	67.2
Note circulation	30.3
Capital and surplus	2.4
Other liabilities	.1
	100.0

It is interesting to note in regard to this that on July 10, 1929, these banks held $1,153,041,000 of rediscount paper. On April 13, 1938, all they held of

PAPER, AT 1,200 FEET A MINUTE!

Akron, Ohio, is a ghost city because of labor troubles says an article in a recent issue of a popular magazine. Perhaps then, for the same reason, some of the cities and towns in Wisconsin and elsewhere are becoming ghost cities. The picture however, gives a different reason: in certain parts of the country an abundance of cheap power is available; and at these points completely modern plants can be built to produce a better product at greater rates with less men than ever before. Here we see a machine in the new plant of the Champion Paper and Fiber Company at Canton, North Carolina. It is the world's largest and fastest producer of high grade paper, and runs 242 inches wide (20 feet) at the rate of 1,200 feet a minute! Notice the gleaming wet surface of the paper, indicating that the machine is in actual operation; then search about for the crew. You find one man in evidence! That indeed is the final settlement of all labor disputes; that indeed is why the mills and factories are leaving their old locations, and why not! Technocracy salutes the engineers who designed, installed, and operate this machine. (Champion Paper and Fiber Company Photo)

this paper was $12,924,000. Is the government paying the dividends out of the taxpayer's money?

How about the other banks? From the same paper; same day; all New York banks reporting:

Assets	Percent of Total	Liabilities	Percent of Total
Cash	31.4	Deposits	85.1
United States Securities	30.6	Capital and surplus	12.3
Commercial loans	34.1	Other liabilities	2.6
Other assets	3.9		
	100.0		100.0

Same paper; same day; all Chicago banks reporting:

Assets	Percent of Total	Liabilities	Percent of Total
Cash	35.9	Deposits	91.1
United States Securities	34.6	Capital and surplus	8.3
Commercial loans	27.7	Other liabilities	.6
Other assets	1.8		
	100.0		100.0

Next day; same paper; Federal Reserve Member Banks in 101 American cities reporting:

Assets	Percent of Total	Liabilities	Percent of Total
Cash	31.0	Deposits	86.3
United States Securities	30.1	Capital and surplus	11.3
Commercial loans	35.7	Other liabilities	2.4
Other assets	3.2		
	100 0		100.0

These figures speak for themselves. Here is liquidity so great that a little more heat will make it gaseous. The ingredients for an explosion that will make March 5, 1933, look like an exploding fire-cracker are all at hand.

These figures make it increasingly obvious that Technocracy's spokesman makes accurate predictions. These predictions are being proved, not by Technocracy's friends but by Technocracy's critics—the staunch upholders of the status quo of the Price System. The liquid condition of the banks is such that, even as public utilities supported by the taxpayer, it will be difficult to keep them in business much longer. This hardening of the financial arteries of the Price System is another symptom of its approaching paralysis and its final dissolution. Roosevelt may use the surplus cash to 'prime the pump' for a little longer but even the artificial heart added to the iron lung will not prolong, more than a little while, the life of the patient.

Insurance Predicament

LIFE INSURANCE SALES DECLINE FOR SEVEN MONTHS 23.5 PERCENT FROM 1937. Such was the headline of a report by the Association of Life Insurance Presidents, New York City, as published in a New York newspaper. Life insurance, in company with the banks and the railroads, is on its way out of business.

Since 1660, when one Jan de Witt worked out the application of the laws of probabilities to the possibility of making a sure thing out of life insurance, this legitimate business venture has grown to vast proportions. As the population expanded, millions of otherwise sane people, impelled by the moralistic teachings of thrift, the care of dependents, and the hope of acquiring social prestige, have invested billions in life insurance.

Life insurance was a great game in the good old days of prosperity. It was safer than horse racing and surer than a poker game in the eyes of many. Only the few realized that you might beat a bookie over the odds but not the life insurance companies which hired none but the best statisticians. As shearer of the fleece of the great American sucker, the insurance salesman was ace-high. Today, the shearer is becoming the sheared.

The insurance companies are in a predicament. Company after company, in which they had invested the premiums they hold in trust for the sucker public, is either in receivership or re-organizing. Dividends from stocks and bonds are no longer a sure source of income. The insurance companies hold millions of dollars of railroad securities which are rapidly becoming so much waste paper. The livelihood of the insurance executive is at stake. He must endeavour to find some means to keep the insurance company in business so that he can draw a salary. That is as difficult a problem as that of maintaining the railroads or the banks. It would appear that the only solution, and but a temporary one at that, is for insurance to become a public utility and let the taxpayer bear the burden. It looks as if the only sucker-bait that is useful any more is political party propaganda.

New business is the butter the insurance salesmen and office staffs spread on their bread. The good old pre-1929 days, when they had jam as well, are gone to return no more. New business for the insurance companies is in a bad way. In ordinary insurance it dropped 21.7 percent; in group insurance it fell 47.1 percent; in industrial insurance it slipped down 20.2 percent (in the first seven months of 1938). There was $1,291,762,000 less insurance written in this period this year than last. The crop of fleece from the great American sucker was small, even if the crops of wheat and cotton were too large. What a life for the business man! He can't get himself the breaks any longer.

Millions of people have insurance policies. Will they ever collect anything of the millions of dollars of savings they have poured into this insatiable maw? To ask this is to question the divine sanction bestowed on public 'confidence.' How the suckers have been trimmed! The insurance companies have the most accurate figures as to the probable life span of the people. Have their financial executives equally accurate figures as to the most probable interest and capital paying ability of the stocks, bonds, and mortgages they hold in trust for the public? If they have, such a tabulation would be conducive of much wholesome hilarity on the part of the Technocrats; but not, we fear, on the part of the life insurance presidents or the great flock of American suckers.

The insurance companies may not admit it yet, but no doubt the governments of the United States and Canada will add them to the taxpayer's burden. The public 'confidence' on which the politician thrives must be maintained at all costs. Yet the taxpayer is no stronger than the proverbial camel. He will find, as that camel did, that there is a last straw which will

break his back. Already the slogan of the North American peoples calls for security from the cradle to the grave. Hear it today, echoing from Alberta to California, from Washington to Texas, and even up into New England and the Maritime Provinces of the Dominion to the north. Who wants to insure against that?

Maybe we can insure against the deficits of production in the field of heavy industries? The governments are hoping so. They know that in the late boom period these heavy industries were 'also-rans' in the race for prosperity. Private electric companies reached only 56 percent of their 1929 expenditures. The railroads for obvious reasons cut their purchases down to 60 percent, regardless of the safety of the travelling public. Compare the accidents of 1929 on the railways with those of 1937. See what happens when the railways cut their maintenance costs for the privilege of remaining in business a little longer as private companies.

Everyone has read about the attacks of government on business, and the counter-attacks of business on the government. The columns of the daily press are full of it. This war is a magnificent sham battle staged for the special benefit of the sucker public. It is the old battle of Tweedledum and Tweedledee. Tweedledum is accusing Tweedledee of spoiling his nice new rattle. Neither wants to tell Alice (the American people) the way out of the wood. It is necessary that both government and business should keep the public from learning the facts, and should provide the public with a spectacular display to keep any misguided persons from enquiring into those facts.

Government and business are both well aware that the heavy goods industries must be revived if the Price System is not to emulate Humpty-Dumpty by falling off the wall. It is unquestioned that the railroads are bankrupt and can do nothing to assist. Private industry in all its forms, even with the stalwart help of the R. F. C., can do no more than it has done. After all, it has to keep the semblance of being private business, or the sucker public would not be dumb enough to miss seeing how it is being trimmed.

Re-armament is the latest cry. The recent events in Europe have been timely both for government and business. It is, however, impossible to carry out a comprehensive re-armament program without making such vast military preparations that these might be easily misconstrued by the peace loving public both on this Continent and abroad. After being the 'dove of peace' in the latest masquerade, it would hardly do for Franklin Delano to appear in public in the guise of 'Mars.' Or does it?

Housing Stymies the Business Man

The Federal Housing Authority proposes a better way out. It estimates that there is a shortage of some two million non-farm dwelling houses. It points out that this should put the heavy industries to work making steel girders, bath tubs, and what-have-you. Business responds by proclaiming vociferously that if the government would only let business alone and restore public 'confidence' all would yet be well and prosperity would come back from around the corner.

Big business men are all agreed that housing is the future market for industry. The banks are glutted with cash assets. The Chairman of the R.F.C. on July 12, 1938, even threatened the banks with dire consequences if they failed to aid trade, and the bank examiners were instructed to ease up on their restrictions as to loans. The engineers and architects are tired of being on the P. W. A. The relief rolls of the W. P. A. are burdened with construction workers. The stage would appear to be set, the cast knows its lines, even the audience is waiting goggle-eyed. The producer and the stage managers alone refuse to proceed. Business says it wants to go into the construction field but actually it is afraid to take a chance. It recognizes only too well that if it did it would be private business no longer. Housing today is a public utility field. Building construction is just another function where the creeping paralysis of the Price System is evident.

The demand for housing exists, but 80 percent of those who want houses cannot pay for them. In 1938, 14,394 contracts totalled about 219 million dollars. In 1929, 15,571 contracts totalled 523.5 millions of dollars. The difference here is between profit and loss. There was no profit in 1938. In 1938, residential building grossed 69.6 millions of dollars and non-residential building 72.3 millions. In 1929, residential building grossed 183.9 millions of dollars and non-residential building 205.1 millions. Does anyone need to ask why the business man does not really want to go into the construction field, however much he may ballyhoo about government keeping him out of it? Of course, if the taxpayer will guarantee the business man profits—but then the taxpayer will have to overwork Aladdin's lamp if he is going to do all that the politicians have already promised he will.

The figures on house mortgages for 1938 will tell us what lies behind this controversy. H. L. B. outstanding loans are $191,889,000; H. O. L. C. outstanding loans, $2,248,982,000. The total government loans are $2,440,871,000 against all other outstanding mortgages of $919,274,000. The government is in the mortgage business up to its neck. It would like the construction business man to form a smoke screen for it just as has the railroad business man, the banks, and the insurance companies.

If the heavy industries are not supported, however, the whole Price System is due for another and even more violent spasm, which may well be its last. The governments have gone far in taking over the railroads; they are deep in power production—the private power companies are not playing nicely so Roosevelt is singling them out for attack. The national governments on this Continent are in the mortgage and the banking business; they will have to go into the insurance and the construction business and would end, if the Price System was not dying of paralysis, by being the only business.

Where Are the Dinosaurs?

Technocracy points out that technological progression is destroying with amazing efficiency that basic need of the Price System, wages and salaries; that it is destroying with equal efficiency the investing of savings in industry. The heavy industries are the foundation of all business. If they fail, no bolstering of the spires and towers of the business structure will be of any avail. The problem before our governments and what is left of our private businesses is to produce perpetual motion

in the first degree or to discover the fountain of the elixir of youth. The Price System has developed too much friction to keep running and is suffering from senile decay.

The trouble with business is the same trouble that the giant saurian reptiles suffered from. The size of business is tremendous; it has the armor, the speed, the ferocity, and the physical equipment even as had Tyrannosaurus Rex. Like that now defunct carnivore, its brains are inadequate. Nature has tried many forms of life in the past. Enormous numbers of these forms have perished. The reasons for their disappearance are known to all scientists. They all over-specialized in some field and could not adapt themselves to changing conditions.

Business and the Price System, likewise, has become too specialized, too crystallized, too traditional to be able to adapt itself to the change in physical conditions. Like the dinosaur, though at the peak of its power and its glory, business and the Price System will pass out of the picture and will be relegated to the glass case in the museum.

Man is man because he never had a dinosaur for an ancestor. Similarly, future social life will be what it will be because it will never have had the Price System and present day business for an ancestor. Nature developed brains so that life can ascertain the most efficient ways of utilizing matter and energy for the continuance of life. To emulate the dinosaurs is to deny life. To emulate the story of man's climb up into the trees and down out of them again is to accept life.

Technocracy, which is science in the social field, tells the story of social life and social growth, including the past, the present, and the most probable future. Those who run may read in the volumes of science the story of life. It is well to take heed and to avoid the fate of the pin-brained dinosaurs, the big-and-little business of the Mesozoic Age. If one must be an imitator, why not at least imitate that primate which in the end became man?

Organizing for the New America

By Lewis Montgomery (M A L)

TO THE people of Alberta, Canada, came forth an evangelist to promote a monetary heaven for a better living. He promoted so well that the people of that province voted the evangelist and his cohorts into office, but he promoted so unwisely that his movement could accomplish nothing when it had seized the reins of political power; and although he still holds office, the substance of that movement died a lingering death.

In California too, the people have been promoted into many movements for a higher standard of living. The EPIC's and the Utopians have floated their stock. The suckers were legion and they should have accomplished what they sought, but they passed the way which all philosophic movements on this Continent must pass. For the people of this Continent must organize to solve an operational problem, and cannot survive unless they do.

Today, we have another prime example of a social movement based upon an emotional premise—the Ham and Egg outcry from California—and this too, although led by top-notch salesmen for a new California, must fail ignominiously.*

We have witnessed the Townsend fever—a clamor of the elderly for a better living. We saw the swashbuckling Huey Long call every man a king, and promote his way with adherents in the hundreds of thousands to sell every man a house, a car, and five thousand dollars. And we heard from the radio station of Father Coughlan the ringing cry for Social Justice that rolled up its millions of supporters and then died.

The people, numbering millions, affected by these cries were persuaded that if they would but follow a flag they could achieve what every American desires—a higher standard of living with less toil. They combined for an extension of the benefactions of the Price System, and they failed. Upon the fervor of an idea they constructed their movements, and holding an objective close before them they drove on with terrific energy, confident that if enough people believed in what they believed they would attain their objective. Almost overnight they grew, mushroomed, and died.

Thus has America, the land of super-salesmanship, sought to sell itself into an economic paradise. Minority movements, enthusiasm, promotion? Yes, but never functional organization. The operational problems of the North American Continent are not stated; the structure and tactics of organizational procedure are not known to them. Not one of them has contributed an iota toward the design of operating a technological social mechanism; not one of them has demonstrated a knowledge of design in social organization. And so has recent American social history run.

The failure of these attempts at social betterment is found in their predication upon European philosophical tenets. Granting their sincerity, they have failed to realize that if the American people are to receive a higher standard of living with security from birth to death, they must organize for the solution of a technological problem.

The problem facing America today is an operational problem concerned with supplying physical goods and services to the entire population; with operating the physical equipment on a balanced-load basis at a maximum of efficiency and output, and a minimum of toil; and with looking after all of the multifarious social

*Written prior to the November, 1938, election.

wants and needs of the entire population. Is this a problem which can be solved by herding a number, any number, of people under one political banner? That is what Americans have attempted to do.

These movements have been based upon the governmental philosophies imported from Europe. Like all historical social movements they assume that the problem of attaining a higher standard of living is one which may be solved by getting enough adherents to believe in their particular proposition. They believe that all one requires to settle a problem is a consensus of opinion; that if one million or ten million people register their desire for a higher standard of living the act is automatically accomplished. The basic concept of all Price System governments and political social movements is that any end may be achieved by resolving the conflict of opinion of all citizens into a common consensus.

But not only must you have a vast following; there is another prerequisite. You must elevate your leaders to a position of political power so that they may put your wishes into effect. The driving force of all political action is found in the theory of the assumption of power in a political state. All the effort expended and tactics involved are bent toward obtaining the political control of a political state. Once in control, the objective is to remain there, and all efforts and tactics are then bent in that direction.

The outstanding feature of civilization on the North American Continent is technology, and in this Power Age the number of people who believe in a particular brand of social salvation has no effect upon the operational problem.

America's Dire Need

Let us look at the physical entity of the North American Continent and its 171 million people. Before an operational problem can be posed, before that problem can be solved, and before human beings can be organized to solve it—for such an organization is required—the physical entity must be known. The designers of a New America must consider the resources of this Continent—its minerals, lands, forests, power potentials, waterways, precipitation, and climate; must understand the racial and linguistic characteristics of its people, as well as their number and rate of increase; must have a complete knowledge of its technological apparatus for production, transportation, and distribution; must know its trained operating personnel; must know the rates of energy conversion of the social entity. In other words, any organization which is building for a New America must know, quantitatively, what the social mechanism is, and what it can do as an integrated whole. Only through that type of an organization can North Americans solve the social problem. Then they can organize for a New America—not for a revision of the old. Promotion and salesmanship will pass with the Price System. In the days to come we shall need organization. The engineer looks upon North America in its operation as a machine. The vital thing is the factor of performance and function. Ludicrous to the eyes of the clear-headed American are the various social theories imported from Europe and Asia. He wants a government of function.

No government in history has ever accepted the responsibility of guaranteeing all of its citizens or subjects economic security and an abundant life from birth to death. Such a proposal would be but the charlatanry of politics seeking the continued approval of the citizens without the possibility of achievement. The function of government has been confined to the regulation of certain habits and activities of its citizens so as to crystallize their economic livelihood and the benefactions of society in a manner most suitable to the attainment of social stability.

This regulation of social behavior has always been accomplished by the expression of opinion, either the opinion of a majority or of a minority, it does not matter which. This type of government has been endemic to economies where the rate of energy conversion has been low, where there has been no complex of apparatus, and where scarcity has prevailed. As the complexity of civilization has increased, so has the tenuousness of this form of government. Fewer and fewer decisions can be made by a consensus of opinion. This type of government is what we have had throughout history. This is the type of government which these popular social movements seek to perpetuate. Let us examine the different facets of this form of human governance, i. e., government by opinion, and in the examination we shall see the reason for the failure of the political social movements of America.

Democracy

Democracy consists of government by the people. The individual citizens of the entity are considered to have a voice, usually equal, in determining the personnel and the decisions of the government in its strata of regulation. It is thus considered to be the *voice of the people*. The glory of this has been written in song and story. It is considered to be the ultimate in human governance. Its crescent of triumph would consist of a state wherein all citizens would have an untrammelled share in shaping the destinies and policies of the political entity.

In the United States today, the opinion of a large portion of the citizenry is consulted with regard to the spending of public funds, the appointment of lawmakers, the judiciary, the law enforcement bodies, the postal delivery, foreign relations, and taxing bodies. But the principles of democracy have not yet been extended to the appointment of production and transportation executives and superintendents, instructors, designers, builders, and other operatives, nor have they been applied to the making of decisions in fields where the requirements for exact knowledge are too severe for public participation.

Democracy has traveled far. But it today covers no wider scope than in its first barbarous manifestations. Technological developments have produced their own form of control, and technology on the North American Continent has rejected democracy. Democracy has failed to function adequately. Yet, it today has many friends. Democracy, sometimes in weird guises and with outlandish accomplices, is making a desperate stand. It needs support. It needs promotion—more promotion; and it is getting it. A most motley crew is promoting democracy. Thus we see the astounding spectacle of communism, plutocracy, and fascism selling shoulder to shoulder for a single goal—democracy. The minority ideologies of Europe are promoting their big sister, but the stock is falling to new lows.

Autocracy and Plutocracy

Then comes autocracy. In democracy a confusion of opinions is reduced to a common consensus by wide

generalizations and by an evasion of the issues involved. In autocracy the right of one individual, and one only, to an opinion is unrestricted and irresponsible. Autocracy may be either benevolent or malevolent, but in both cases it is absolute. The objective of the autocrat in his tribe or principality was to keep things simplified, in the status quo. His edicts and laws affected the people principally with respect to the bearing of arms and the payment of taxes, but had no concern with the distribution or production of goods and services beyond the distribution of alms on certain occasions. Autocracy has therefore been restricted in its application since life began to assume any degree of complexity. It endured until the needs and desires of any people became so varied and complicated that department after department of jurisdiction was surrendered to some official who eventually became a minor autocrat himself.

Through various developments this form of government has evolved into numerous varieties of democracy and bureaucracy where the opinion of several, or even a majority of people, is often consulted. The exercise of opinion was widened, but the decisions made were lessened as is always the case, until a point is reached where a maximum of opinion results in the minimum of decision.

Now as the function of both democracy and autocracy has been the economic channelization of the wealth of the community so as to preserve the status quo and render the chief benefactions of a particular economy available to only a few of those close to the head of the government, it is not surprising to find another variation in governmental form. That variation takes the form of a clique of wealth which becomes *ipso facto* the government. This clique is composed of those who have received the chief monetary benefactions of society in the past, and they are naturally anxious to see that government is conducted so that these benefactions shall continue. This is known as a plutocracy. Its opinions are the government.

Fascism

The variations and combinations of these opinion forms of government are numerous, and within the past few years we have seen the emergence of two forms which are a combination of democracy, autocracy, and plutocracy, and which have both promised much to their respective adherents. One of these is fascism—the consolidation of all minor rackets into a major monopoly for the preservation of the values of the Price System. Fascism is an attempt to extend to opinion-government the prerogatives which it never had. Fascism, as the control under one corporate head of all processes, functions, businesses, and prices, attempts to make decisions in fields of factual endeavor. Fascism attempts to control the flow of goods and services. The result is a decapitated democracy wherein the exercise of all opinion is invested in one individual—the autocrat, duce, führer, etc., who in turn is subjected to some measure of control by the opinions of the chief industrialists, financiers, businessmen, and the church—in short, a conglomerate bureaucracy.

This philosophy, based upon the writings of Italian and German idealists, attempts to accomplish the impossible—the control of all industrial equipment by arbitrary opinion. Who is to make what, when and where, hours worked, wages and prices, exports and imports, taxes, to war or not to war, are some of the things decided upon by opinion under fascism. In short, fascism proposes by regulation, control, and sterilizatio to channelize under a Price System all the physic operations of the country concerned. Its objective is to provide its citizens with the maximum of goods and services that can be produced with a maximum of human toil in a scarcity economy, coupled with an increasing population and frequent emotional release for the restricted orbit of its people.

What about fascism for America?

On this Continent the rate of flow of goods and services is too great to be controlled by any individual or set of individuals that could be guided by the same set of political philosophies. On this Continent the order of magnitude of all operations is so great that no decisions effected on the basis of opinion can be valid unless by accident. The rate of flow of goods and services to 171 million people on the North American Continent living under high-energy conditions is too great for control by any historically known form of government. Fascism, in its attempt at greater control, would be even more incompetent than democracy on this Continent.

In America today we have the German-American Bund, brown shirts, black shirts, silver shirts, and many others striving for the ear of, and ranting against racial and religious minorities in order that they may create a movement for their objective of a better living. And why should we not have these minority movements, for under democracy is not *everyone* entitled to his opinion?

Communism

Then comes that moral philosophy for the more equit able distribution of the products of a scarcity era. Based upon the writings of Karl Marx, who in turn developed it from the writings of Hegel, Feuerbach, Ricardo, Thompson, Proudhon, Sismondi, and other eighteenth and nineteenth century writers, communism was actually developed to an organizational point in western Europe, where attempted installation seemed imminent. However, this did not occur and it remained for vast Imperial Russia to be the first proving ground of a mutilated communism.

The writings of Karl Marx are sufficiently old to receive the due respect of age; they are at the same time, old enough to have preceded the Power Age; and they are bulky enough to be impressive. This combination has an excellent appeal to the intellectual liberal of American metropolitan centers. Involved in communism is the theoretical structure which the intellectual liberal seeks. Absent from communistic writings are the elements of design for a social control to operate a high-energy civilization; absent from communism is the organizational structure which could create a mass movement of North Americans. Its 1938 swing to 'democracy' has not added the missing elements.

Anarchism

But besides these possibilities of government, there is yet another variation. Various rebels throughout history have proposed that there should be no government whatsoever, beyond the opinion of the individual i relation to his own individual problems. This propos tion involves an increase in the expression of opinion to one hundred percent, and the decline of social de-

cision and management to zero. The net result would be no government at all, or anarchy—scarcely conducive to order in the control of 1,600,000,000 horsepower of prime movers, and the distribution of the resulting products.

And thus we run the gamut of government by opinion, from zero participation of the populace, to one hundred percent participation; and upon examination, we find that nowhere within this range is an optimum, for nowhere within this range are to be found the specifications for the operation of a high-energy civilization. In legalistic terms therefore, government by opinion must be found irrelevant, incompetent, and immaterial. It has been weighed in the balance and found wanting. A new methodology of conducting social affairs must be employed.

Technocracy points out that whether a government be democratic, autocratic, or plutocratic there is no observable difference, other than a difference in degree, in the incompetence with which operational problems are approached. Opinion is always opinion, and votes are just votes.

Modern technology has changed the squares upon which the checker players of political theory have played. They are still using the same old men and the same old rules, but they have a different board and the game is going askew. Technology, which is not a point of view but a method, has laid down the pattern for governance and social organization on the North American Continent—and that social organization is being constructed today.

Technocracy

The organization which is selected to lead the people of North America in their Continental mass movement for a New America must be prepared to apply science and technology completely to the social mechanism; it must be prepared, at the behest of the American people, to scrap the Price System with its political government entirely; it must make no compromise with the Price System either in its actions or in its structure. That organization for the New America, the Technological Army of the New America, is not promoting either a democracy, an autocracy, an oligarchy, a plutocracy, a fascism, or a communism. It is instead organizing the people of North America for a Technocracy—a technological administration of this Continent by science, engineering, and technology.

The News Reel

A CAUTIOUS probe into the future status of endowed institutions by the *New York Times*—'But what of rising income taxes, the heavy duties levied on estates, the threat of inheritance taxes? . . . A few of the largest (foundations) may ultimately be liquidated and their functions taken over by the government.' Then of course there is the declining interest rate which the *Times* forgot to mention. *A fund only earning two percent cannot maintain a university geared to a five percent income; or can it?*

Technology: A mechanical hop picker pulled by a tractor on a 400-acre California ranch picking twenty 200-pound bales free of leaves and stems in a 10-hour day.

Benefactions. Seventy-two men ranking high in the scientific hierarchy of the land have had their incomes analyzed. The top sixteen earned as follows: six of them more than $15,000; four, more than $20,000; two, more than $25,000; two, more than $50,000; and two, more than $65,000. A New York paper editorializes: 'Our technological civilization often does well by its friends and not all its rewards are for the oppressors of the poor.'

Curious statistics: W.P.A. relief rolls swelled by more than 500,000 since summer, and industry claiming that it has added from 1,000,000 to 1,500,000 to the payrolls in the same period!

War wanted! Into the red went the steel industry in the third quarter of 1938 to the tune of only $6,782,692, while in the second quarter it lost $8,340,889. Recovery is here.

Exit a native American sport. Eighty thousand people at a national corn husking contest to experience eighty minutes of excitement where one man has husked as many as forty-one and a half bushels. But, lurking in the background, right in the corn husking field, stands an evil product of the equipment makers—the mechanical corn picker of which there are now 65,000 in the Middle West.

Speaking of low interest rates it is recorded that the net operating income of Class I railroads for the first nine months of 1938 was 1.10 percent on the property investment.

Maybe this will increase employment. Overhead the specter of a big stick while the private utility companies of the United States, egged on by the government, propose to spend $2,000,000,000 for improved power facilities to increase industrial capacity in war time. More power for America!

Obstinate beasts! Citizens of the United States blamed for decline in banking business. The business of banking of course is to lend money, but the banks now have only $21,000,000,000 out in loans whereas in 1928 they had $38,000,000,000. This lamentable position! Quoting John T. Flynn: 'There is only one thing holding them back, and that is their own customers, who do not seem to want to borrow money.'

On the world's richest Continent. In the poorest third of American families in the year ending June, 1936, the average income was $471. The highest income in this group was under $780. This poorest third, about 13,000,000 families and single individuals, received only 10 percent of the total income—the same amount which was received by the richest 197,000, comprising only one-half of one percent of the total population. In the United States 1,162,890 families received less than $250 a year, and another set of 960,644 single individuals were in the same income brackets.

At a compound interest rate: The total individual, business, and governmental debt of the United States has now reached 250 billion dollars—an all-time high! Just a further confirmation of Technocracy's predictions.

Around the Continent

Howard Scott Tour Striking Success!

CLEVELAND—Akron—Appleton — Winnipeg—Regina—Saskatoon—Prince Albert—Edmonton — Calgary — Vancouver — Victoria — Seattle — Portland! In these cities, Technocracy, after five years of organized effort, has drawn a record series of large and capacity audiences to hear the disturbing social challenge offered by its Director-in-Chief, Howard Scott.

Full tribute to the machinery of the Organization in these cities for their excellent preparatory work! A rather anomalous spectacle it must be to Technocracy's professional mourners to see crowds of people jamming into halls to hear about such a long dead, 'fantastic pessimism.' Still more peculiar must it be to the critics of America's first authentic social movement to see officers and members journeying hundreds of miles to be there. And ominous must be the approval of that responsible, unaffiliated cross-section which crowds into these lectures. Technocracy has registered the fact that it is wanted by the people of North America.

The first lecture took place on October 14, in the Masonic Auditorium, *Cleveland,* Ohio, when 2,200 people paid admissions to a lecture on the conditions and trends of the social mechanism—not to a concert, a fan dance, or a hockey game—but to a lecture on Technocracy. They listened intently, they applauded, they asked questions until after 11:00 P.M., they took home almost one thousand pieces of literature. Then they talked to thousands of their friends, and many of those friends who had seen the posters of Technocracy traveling around the city on the street cars and busses for a week previously regretted their absence. They had to go, instead, in quest of one of the many units of Technocracy in the area. And this process was repeated throughout the lecture tour.

A dinner meeting for Howard Scott was attended by 65 members of the Boards of Governors of the Cleveland Sections and by seven members of the Board of Governors of 8342-1, Detroit. (A delegation of 35 members had traveled from Detroit). On the next day a mass meeting of all members in the Cleveland area was held, which, rounded out by numerous committee meetings, concluded the events there. Thus was the tour launched.

Akron, the city where most of the tires of the world used to be made—where even the daily press has become a little sober minded: 'We have no desire to poke fun at either Scott or Technocracy.' And, quoting again:

Alice Longworth Roosevelt, princess of the Oyster Bay Roosevelts, spoke to a bored and scanty audience at the armory Thursday night. Howard Scott, the originator of Technocracy, addressed over 2,500 people from the same platform a night earlier.

Following some stirring membership meetings the Howard Scott tour party sprang off on its long westward road—outstandingly the only organization with a social objective on this Continent which can leave its Headquarters on the eastern seaboard, receive a welcome in the Great Lakes area and jump off for further welcomes in the Mid-west, the prairie provinces of Canada, the Pacific coast, and points in between.

Following a short stop for membership consultations in Chicago the tour party proceeded to *Appleton* in rural Wisconsin, where ten Technocracy-grey, vermilion emblemed cars waited at the station as escorts to the hotel. Delegates from all surrounding Wisconsin towns, officers from Chicago and Milwaukee, and a carload of members from mid-Kansas, 800 miles away, attended the proceedings. An overcrowded membership meeting, and on the following evening a record crowd listened to Howard Scott. Even a wet night which kept away 300 ticket buyers failed to prevent the ringing up of another record. As a result of this lecture the Appleton Section recorded an increase which brought its membership to more than 100 percent over that of six months before. Concluding the visit a closed meeting was held where the Director-in-Chief delivered one of those addresses which in its compelling soundness not only makes Technocrats but keeps them that way.

Winnipeg, metropolis of the Canadian prairie west, where the golden grain (when there is any) rolls to the markets of the world, and farm equipment (when the farmers have the credit) rolls out. In Winnipeg too, far removed from the industrial clamor of the east, Technocracy was welcomed. Says the *Winnipeg Tribune*:

More than 3,000 Winnipeggers Tuesday night turned out to the civic auditorium to hear Howard Scott, Director-in-Chief of Technocracy Inc., direct verbal barb and technological argument against a social and economic order that he saw as outmoded—and call for a mass movement towards a non-political, strictly Technocratic set-up on the North American Continent.

But a little over two years old the Winnipeg Section is now ready to spread the Organization throughout Manitoba, and, confident, is even casting about for farther fields—North Dakota and Ontario.

Regina, the political capital of Saskatchewan which Howard Scott roughly startled last year, turned out an appreciative audience. Twelve officers and members were introduced to the audience from places including Bienfait, Mossbank, Avonlea, Reserve, Pangman, and Moose Jaw in Saskatchewan, and from Minot, North Dakota. Almost one-third of this audience remained for the organization meeting.

Saskatoon. Up into the 'chilly north,' where a day's snowfall did not daunt or diminish 'the tense audience which filled Third Avenue Church to the doors,' as reported by the press. Another commentator writes: 'Before the Director-in-Chief was introduced, representatives of groups from 18 outlying districts were called to the platform and as their names were read off they saluted the audience and resumed their seats.'

Saskatoon in its central location in the province is rapidly becoming a center for Technocracy, and the members there, strengthened as only the direct word and personal contact of the Director-in-Chief could strengthen them, are going out to 'conquer.'

At *Prince Albert,* the snowstorm, grown to a veritable blizzard, failed to prevent a large crowd drawn from as far away as 160 miles and representing at least eight towns. The City Band was in full force to play in the hall prior to the lecture, and afterwards a luncheon of 110 members in a local cafe heard a resume of Technocracy's history and organization tactics. With the schedule only permitting one day in Prince Albert the rest of the time was well occupied with a Farad meeting and officer conferences. 'The presence of such a dynamic

personality even for a short duration will result in a stronger esprit de corps amongst the members of this area.'

Edmonton, where the farthest north office of Technocracy Inc. is located. First day—a membership breakfast, press interview, and Section banquet. 'It is practically impossible to express the effects of the Chief's talks on the Section membership.' Second day—a Farad conference with the Director-in-Chief and a general membership meeting. 'The vast Section Headquarters was filled with members who sat tense and silent listening to an address by the Chief . . . the Chief at his best.' Third day—a membership luncheon and at night a mass meeting in the Empire Theater to a capacity audience. The usual ready public acceptance of Technocracy on this tour was again demonstrated and a successful organization meeting was held at the conclusion of the lecture. 'Our arrangements for handling of new members after the organization meeting were totally inadequate. We were overwhelmed by numbers. What a meeting!' As the tour party departed next day every Technocrat who could was at the train to see the Director-in-Chief depart.

Calgary. Over the top went the lecture in this 'City of the Foothills.' For fifteen minutes prior to the opening of the meeting the box office had to be closed as an auditorium jammed with people waited for Howard Scott to come upon the platform. Composed largely of business and professional people this capacity audience registered approval of Technocracy's analysis and proposals and signified its intention almost unanimously of aiding and assisting Technocracy in its work for the construction of the New America. At a membership gathering in the Palliser Hotel, Howard Scott, in referring to the growth of the Organization, said: 'You have done this thing—without money—just by the support and integrity of human beings. A little bit more and it will be ready to roll—the first mass movement on this Continent.' Technocrats from neighboring cities and towns attended the conferences and lectures and southern Alberta, as a result, will now 'go to town' faster than ever before.

Then *Vancouver.* As was to be expected, the membership had succeeded in selling out practically the entire capacity of the Auditorium. In spite of a snowy, slushy day and a wet night more than 2,200 people were in their places to hear the long anticipated lecture. 'The audience listened attentively and the results showed that the message of Technocracy as given by its Continental Director has a far greater receptivity today.' When the speaker asked for a show of hands for those who wanted a rebuilt New America every hand went up. Over 500 stayed for the organization meeting and the New Membership Committee worked feverishly to take care of the applications—the greatest number ever obtained at a public meeting of Technocracy in Vancouver. A large quantity of literature was disposed of by trained crews.

Long recognized as a center of Technocratic activity, Vancouver drew many Technocrats from all over the country on this occasion. Some of the points represented were Victoria, Nanaimo, Port Alberni, New Westminster, Chilliwack, Salmon Arm, Princeton, Sorrento, Kelowna, and Trail, and a number of points in Washington and Oregon—all with their quota of officers and members. Together with the Vancouver members they held a three-day series of conferences on organization problems and, uniting together, packed the ballroom of the Georgia Hotel for a rousing membership meeting. At midnight on November 14, immediately following the public lecture, the tour party embarked for Victoria.

Victoria—final Canadian meeting. 'The meeting here last evening was another in a string of meetings which will take Canada over the hill. The house was packed and the audience extremely receptive . . . they came from all around the Island to attend.' So read a report briefly describing the event. In keeping with Technocracy's strength on Vancouver Island where it is established in almost every city and town of any size and growing stronger every day, was the action of the *Victoria Daily Times* in publishing a full page illustrated article on Technocracy in its Sunday edition prior to the lecture. With the impetus received from this tour Victoria and the other Island Sections are now ready to re-double their efforts in preparation for the day when Technocracy shall become the mass movement of this Continent.

Seattle. Back to the United States again to an area where in a dozen cities Technocracy is functioning stoutly. Chosen for its size and central location Seattle became on this occasion the mecca of so many Technocratic visitors that special hotel accommodation had to be secured. From Bellingham, Everett, Marysville, East Stanwood, Tacoma, Puyallup, and many other places, including Canadian points, they came to attend four days of intensive work in strengthening the Organization. Street cars and busses carrying posters, 1,000 posters displayed from other media, thousands of leaflets distributed, and energetic ticket distribution resulted in a packed house, the largest audience yet to hear a Technocracy speaker in Seattle. The applicant members signed up by the Seattle members constituted an accomplishment which they may be proud of, and the expression-of-interest cards turned in set another record.

Portland. With a smaller resident population and fewer surrounding cities to draw from, the Portland audience was slightly under that of Seattle's numerically, but it turned the tables in recording an unprecedented percentage of membership applications. In delivering one of the best lectures of the tour the Director-in-Chief roused a predominantly conservative audience to the point of taking action and the results to the Portland Section and to the Sections in Camas and Vancouver, Washington, were highly gratifying.

Thus passed the first six weeks of an organization campaign which has had no parallel in the history of the Organization. Previous tours had called for more stops, more lectures—lectures in all towns where Technocracy branches were capable of sponsoring successful meetings—but no tour had ever been received with such spontaneous and universal public approbation. Thirteen public meetings and at least three times as many membership meetings in six weeks, and not one even remotely suggestive of a 'flop!' Thirteen meetings at widely separated and widely differing cities on the Continent and the same enthusiastic reception and recognition! The membership of Technocracy Inc. is again reminded that it can be proud of its achievement.

In our next issue an account of the meetings at Salt Lake City, San Francisco, Los Angeles, San Diego, and Phoenix will be given—five meetings that will conclude the tour and put Technocracy over the top in its greatest year of advancement so far.

Social Objectives

Technocracy's survey of the economic situation in North America leads to the conclusion that there is in development a process of progressive social instability, that this process will continue until the instability exceeds the limits of social tolerance, and that there then will have to be installed on the Continent a social mechanism competent to meet the needs of its people.

Technocracy finds further that the day when social operations on this Continent can be based on a method of valuation has passed, and that it is now necessary that there be applied in the social field the quantitative methods of physical science.

Technocracy, therefore, proposes that the North American Continent be operated as a self-contained functional unit under technological control. This control would operate the area under a balanced-load system of production and distribution, whereunder there would be distributed purchasing power commensurate with the resources and the continuous full-load operation of the physical equipment, with the guarantee of a high standard of living, equality of income, and economic security, at a minimum of working hours, to every adult inhabitant.

Technocracy states unequivocally that only such a social mechanism can operate with stability and endure in the face of the unidirectional and irreversible advance of this Continent's technology, use of extraneous energy, and resultant increase in potential production.

Technocracy is not a political party. It has nothing in common with communism, socialism, fascism, or any other social philosophy. It is the 'Technological Army of the New America,' an organization with a social objective formulated, officered, and staffed by North Americans as the only solution to the unique crisis facing this Continent.

Technocracy Inc. may take political action, but it would only do so when the organization is sufficiently trained, disciplined, and widespread to permit the simultaneous execution of that action in all parts of one of this Continent's principal national entities. If Technocracy Inc. takes political action it will be the last political action, as such action would be taken solely for the abolition of the Price System and its accompanying political administration, and the transition into the functional mechanism of a Technate.

At this stage, therefore, the objectives of Technocracy Inc. are first, the education of the people of North America to a realization of the conditions behind the social crisis, and second, the organization of all those willing to investigate and interest themselves into an informed, disciplined, and functionally capable body whose knowledge and ability can be called upon to prevent chaos in North America at the time, now imminent, when the Price System can no longer be made to operate.

THE LARGEST STRUCTURE ON EARTH

(Front Cover) A portion of Grand Coulee Dam—the steel and concrete structure which will block the Columbia River—as it is today. On the top workings are a few men, tiny in their surroundings; the 70-ton steel gate on the barge will forever close one of the diversion slots in the center of the dam; and in the foreground high-scalers are drilling the west abutments. The project, in its technological social aspects, is described in this issue. (U. S. Bureau of Reclamation Photo)

POWER PLANT ON WHEELS

(Back Cover) Close-up of 1,800 horsepower diesel locomotive on the Santa Fe. This train makes two round trips between Chicago and Los Angeles each week. The only branch of railroading that 'pays' is equipped by modern technology! (*Diesel Progress* Photo)

TECHNOCRACY

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Official Literature

Pamphlets

America Must Show the Way ..... 10 cents
The Mystery of Money ..... 10 cents
Introduction to Technocracy ..... 25 cents
Science vs. Chaos ..... 10 cents
Technocracy in Plain Terms ..... 5 cents
The Energy Certificate ..... 10 cents

Periodicals

Technocracy, 155 East 44th St., New York, N. Y.; 15 cents, $1.50 for 12 issues, $1.00 for 8 issues.
Technocracy Digest, 307 W. Pender St., Vancouver, B. C.; 10 cents, $1.00 for 12 issues.
Eighty-One Forty-One, 438 The Old Arcade, Cleveland, Ohio; 10 cents, $1.00 for 12 issues.
The Technocrat, 154 W. 12th St., Los Angeles, Calif.; 10 cents, $1.00 for 12 issues.
The Section Post, P. O. Box 1003, Portland, Oregon; 10 cents, $1.00 for 12 issues.
The Foothills Technocrat, 305 I. O. O. F. Bldg., Calgary, Alberta; 10 cents, $1.00 for 12 issues.
The Northern Technocrat, Box 371, Edmonton, Alberta; 10 cents, $1.00 for 12 issues.
The Southwest Corner, 964 Fifth Avenue, San Diego, Calif.; 5 cents, 50 cents for 12 issues.
Technocratic America, Technocracy Inc., R. R. 2, Box 524, Fontana, Calif.; 5 cents, 50 cents for 12 issues.
The Prairie Technocrat, 342 Main Street, Winnipeg, Manitoba; 5 cents, 50 cents for 12 issues.
The Desert Salute, Box 123, Hinkley, Calif.; Gratis.

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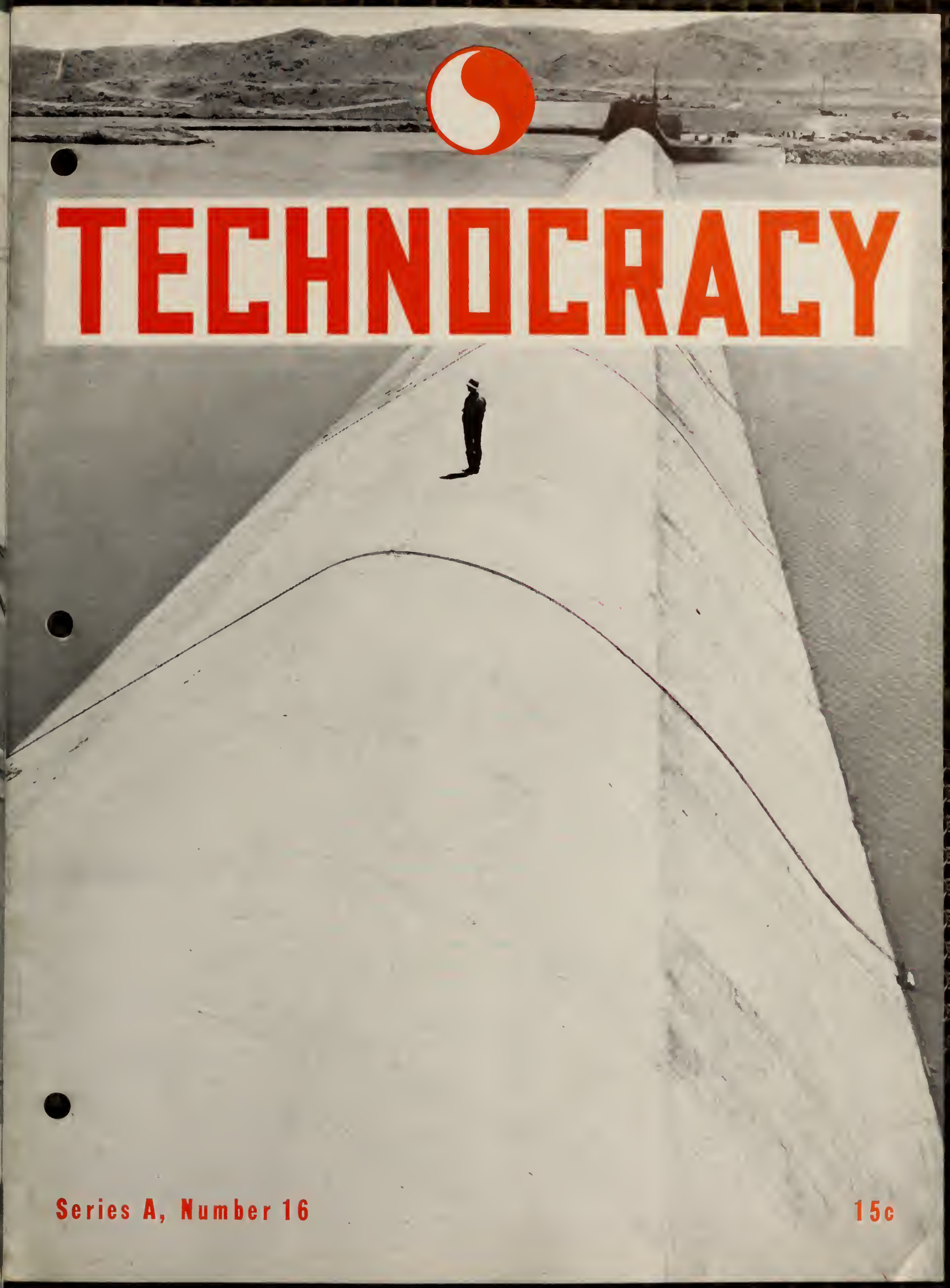
The world's largest dredge: each bucket takes 18 cubic feet. Installed at Hammonton, California, and electrically operated, this dredge can dig 13,000 cubic yards daily, can go 112 feet below water level, and weighs a total of 3,500 tons. (Yuba Manufacturing Company Photo)



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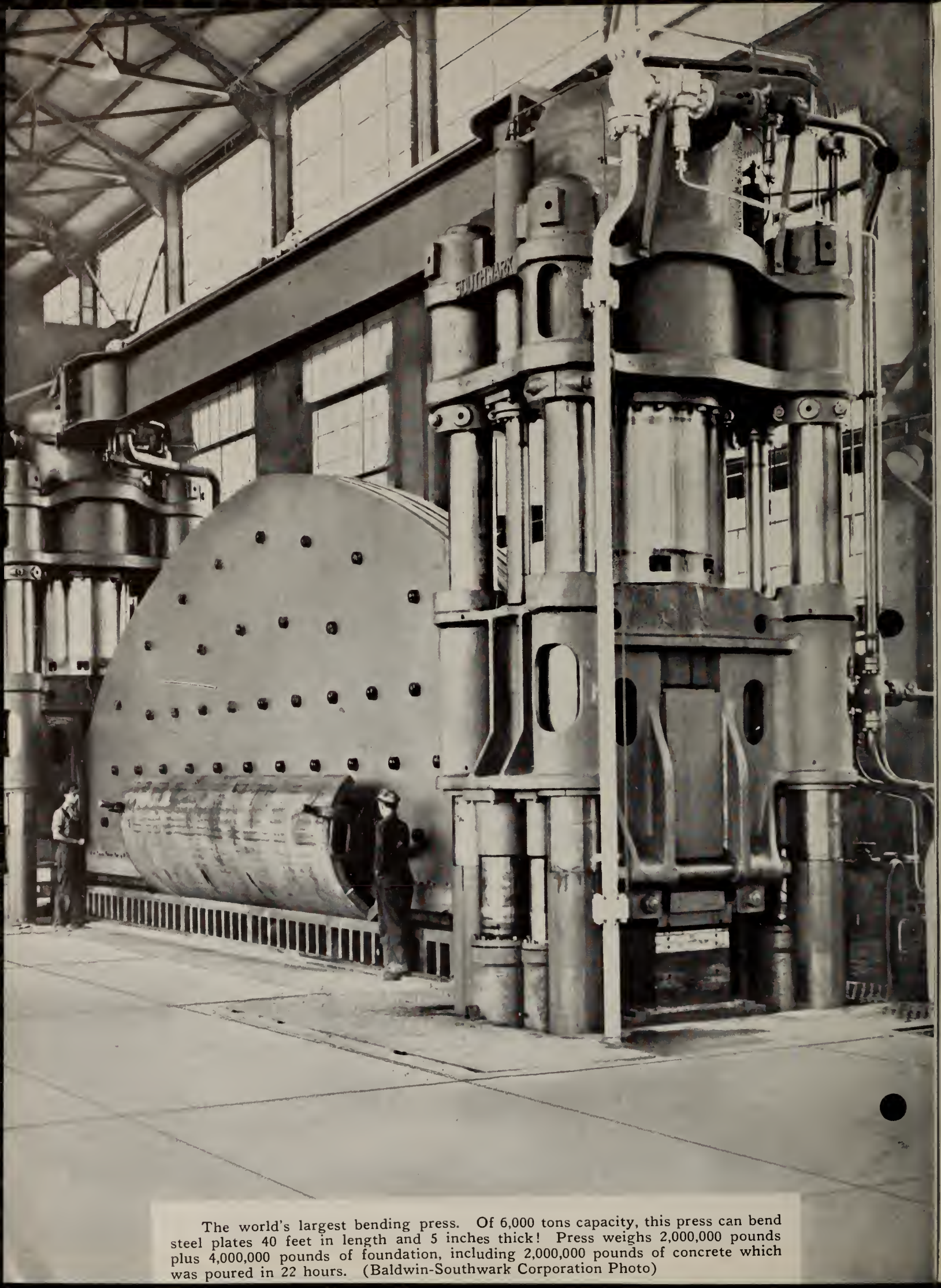

The world's largest bending press. Of 6,000 tons capacity, this press can bend steel plates 40 feet in length and 5 inches thick! Press weighs 2,000,000 pounds plus 4,000,000 pounds of foundation, including 2,000,000 pounds of concrete which was poured in 22 hours. (Baldwin-Southwark Corporation Photo)

TECHNOCRACY

The New America

OFFICIAL MAGAZINE OF TECHNOCRACY INC.

A Decade of Defeat

By Howard Scott

Director-in-Chief, Technocracy Inc.

THE United States and Canada are in the tenth year of the great economic depression. In the last six of these ten years the United States has been blindly groping for the fantasy of recovery under the ational leadership of the New Deal of the Democratic arty. The year 1937 witnessed the nearest approach to 1929 in our national production of physical wealth, but by September, 1937, the inventories of the country had piled up to such an extent that the United States began another economic nose dive which was only halted in June, 1938, by the injection of more federal funds.

This economic nose dive was the most precipitous that this country has ever known, and Washington met the crisis by instituting a nine billion dollar budget for the ensuing national fiscal year. From June, 1938, to the first of January, 1939, national operations continued to increase monthly and yet, in spite of all the priming plus the stimulation due to war armaments, the month of January, 1939, disclosed a drop of two points.

Business recovery, prosperity, and re-employment are even more mythical today than they were in the Hoover days of 'just around the corner.' In spite of the billions that have been spent in the vain attempt to recover prosperity, these United States have today over 21 million Americans on relief with a total of 88 million Americans who receive all or part of their income from the various governments of the United States.

The United States and Canada have abandoned the seven-thousand-year-old process in the production of their physical wealth. In seven thousand years of social history the physical wealth of all human society has been produced by the same process. This process was the production of physical wealth by the application of human toil through hand tools to the natural resources of the physical environment of any given national entity. As the rate of doing work of the human engine is of a low order (remaining unchanged in these seventy centuries of social history) all human society, exclusive of present-day United States and Canada, has been doomed to the scarcity of human toil; for under that process the annual production of physical wealth could only be increased by working human beings longer hours or by increasing the total population, or further through a combination of both. Yet even if such measures were attempted the increase in the per capita production of wealth for 97 percent of the population would be practically negligible.

No national government of yesterday's seven thousand years could raise the standard of living for its total population because all governments found it impossible to increase the production of physical wealth sufficiently to abolish scarcity. No government of yesterday or today, exclusive of this country and this Continent, has ever possessed the knowledge and the means to produce more physical wealth, and *they* have never possessed any means whatsoever to distribute that wealth to their citizens. The means of production and distribution of physical wealth have been dammed by the centuries of scarcity out of which they evolved.

America Multiplies Production

This country and this Continent have a rendezvous with destiny, a destiny that prescribes that here on the Continent of North America the age-long rule of toil and scarcity shall be banished forever from the lives of men. The march of technology will bring about on this Continent the end of an epoch in the social history of man; for today in Canada and the United States the physical wealth of these two national entities is produced by the application of extraneous energy through technological processes to the natural resources of this Continental Area. Toil is about to be banished and with its banishment will go scarcity, poverty, and the morality of work. The United States and Canada can multiply

the production of physical wealth by a further application of physical science to the means whereby we live. When more physical wealth is produced on this Continent it can only be done by working fewer Americans less. The paradox of the ages! Through all the centuries of toil the only way the mass of human beings could obtain more was by having the mass toil more. But here in God's country we must at last realize that the only way that the mass of Americans can obtain more in America's tomorrow will be through the abolition of toil and by working less. The ways of Providence are strange and wonderful to behold, for here at last will all of God's children come into their own.

America Faces a New Problem

Here on this Continent we face a social problem never previously faced by man. The social problem of America is Continental in scope and character. It bears no relation to any social problem ever faced by any people on earth. We have no precedent to guide us, no tradition to caution us, no philosophy to stupify us, and no heritage of culture to stumble over. The social problems of the rest of the world are minor in character and totally unrelated to the problem of this Continental Area. Great Britain, France, Germany, Italy, Russia, and Japan have their problems, but their problems are not ours. Their problems are all related, for they are the bastard progeny of scarcity. They in their problems can go on by changing the facade of their national structures and by retaining their age-old internal mechanics of national operation; but here on this Continental Area we shall have to dispense with every facade and throw overboard every item of the mechanics of yesterday's internal operation.

This Continent cannot contemplate, in the face of the march of power, the retention in our social structure of an age-old system of jurisprudence predicated on the proprietary rights of the beneficent few to perpetuate and to transfer by title, deed, and exchange the values of toil and scarcity. The jurisprudence of America's tomorrow will have to abrogate all of yesterday's juridical propositions, torts, rights, and titles. The jurisprudence of a New America must be the specifications of the regulation of human conduct and affairs so that all citizens, unequal in their individual capacity, shall be equal as legal citizens in their claims and rights to participation in Continental purchasing power—unequal as persons but equal for the first time as citizens in the New America. The abolition of scarcity by the technological process of producing physical wealth will throw overboard all the law and jurisprudence that has been founded upon and evolved from the values of scarcity and toil. Values cannot exist in the New America of abundance.

All of the political instrumentalities of national administration that have arisen from the operation of the governments of man in the production of scarcity by human toil will have to be dispensed with as being totally inadequate to serve the needs of America's tomorrow wherein technology produces abundance. The oligarchies and the democracies, the plutocracies and the autocracies, the monarchies and the dictatorships all alike fail to meet America's problem.

North America as One

These United States of America, a confederation of [illegible] sovereign powers, entered into a contract of confederation called the Constitution whereunder the economic channelization of the production of physical wealth by human toil was guaranteed in perpetuity, and whereunder the said channelization should be so maintained that its major benefactions should accrue to those who create debt the most.

The social mechanics of the United States when the Constitution was framed were the same social mechanics as in the days of Pericles, the Caesars, and Charlemagne. The Constitution of these United States was conceived and formulated in the days of the primitive hand-tool toil of scarcity in our early agrarianism. The Constitution of these United States was written with the hoe and the scythe and belongs to the days of the oxcart and the outdoor privy. The United States and its citizens today, with 1,230,816,000 installed horsepower of prime movers that produce and distribute our national physical wealth, are throttled by a political document that never has and never can be capable of evolving operating specifications for this plethora of energy-consuming devices.

In this Power Age the rights of states, provinces, counties, and municipalities, and their political and legal status, are but breeders of further anarchy. In the greater America of tomorrow there can be no separatist rights of any minor portion of this Continental Area. There can only be the rights of this Continent as one operating totality, one economic organism, one technological control, one country, one people—one and indivisible.

Price System in Throes

Internally, the operations of the United States and Canada become daily more critical as each succeeding enactment of palliative legislation not only fails to prevent further crises from arising but actually in turn creates larger problems than even those which it retards. In the tenth year of the great depression we still see all the national leaders of industry, business, politics, and science hoping for a solution. Each rise in national production is hailed as a signal of coming recovery. Each decline in national production is played down as merely a temporary setback.

Relief costs and taxes are rising steadily. So too is government debt and government employment. Electric power consumption and bank deposits soar to new highs, while bank loans and interest rates dive to new lows. These are the same indicators that strode across our national stage in 1932, but today they have grown in stature. National business in 1932 in the hour of its need cried out to be saved and the federal government of the United States came to its rescue; but today national business can no longer be saved and the realization of this fact is creeping home to every intelligent businessman, for his fixed charges are rising while his gross 'take' is declining. The figures of corporate income prove this to the hilt. There are only [illegible] percent of the corporations making a profit today that showed a profit in 1930. In spite of the billions pumped

in by the United States government, business can no longer be saved. This strikes an ironic note in that the United States government could have purchased at market prices the outstanding securities of all corporations listed on the stock exchange in 1932 for less than four-fifths of the billions that it has expended for attempted salvation.

The United States government could have bought business out of business, but at that time national business was positive that it did not want to be bought out, that if the government helped it with public money it could come back to that glorious position of making money in that same old way. Today, however, the realization has crept home that the smart thing to do is to have the government of these United States (and of Canada) buy you out of business with federal securities.

Consolidating the Rackets

The public utilities of course have stolen the first move from the rest of corporate enterprise. The railroads will not be far behind, followed by the express and communications corporations, and unless the national administration can finagle this country into a world war the steel companies will be pleading for Washington to buy them too. The decline in foreign markets for our agricultural products will force the advent of the same policy in our agriculture. The federal government of these United States is already definitely in business in the field of public utilities, and through its many loaning agencies it is into the field of banking and finance in a deep scale. The United States government today is the biggest single business in cotton, corn, wheat, tobacco, and other agricultural products.

Strange but true that under this Price System of production the United States government has to go into business in order that the life of the remaining business be prolonged a mite longer! This situation is not one of war or emergency. It is a chronic national and Continental condition. The United States government cannot retreat. It must advance. It therefore follows that private business will have less profitable business. The extent of profitable business will be directly proportional to the amount of government aid, direct and indirect. As government aid in greater amounts pervades still more categories of business endeavor, the government aid will be followed by government regulation and control, ending finally in government acquisition.

The investment of capital in the United States and Canada today in the expansion of private enterprise has become a feat impossible of achievement. Large capital already is aware of this strange situation. The only field left open for capital investment on a large scale that has any surety of investment return is in the securities of the federal governments of the United States and Canada. It is therefore dawning upon our economic royalists that government taxes will increase as national relief grows greater and that the more they make the more they will be taxed. And what is funnier still is that if they succeed in spite of everything in making money on any large scale, there won't be any place to invest it in except low return governments.

This being the sad condition of national business, it is beginning to see the handwriting on the wall and businessmen reason correctly that: Why should the large businessmen bear the brunt of adverse public opinion which charges them with responsibility for the condition of corporate enterprise?

They can't win and they have to lose. So the businessmen of the United States and Canada, with their customary foresight, are recognizing that it will be safer and more profitable to sell out to their federal governments and have the governments collect their income in the form of taxes from 140 million people. When business is no longer profitable in this land of the free and home of the brave it is only just and meet that the government of the people should buy it at a fair price.

80,000,000,000 Horse Feathers

Fish don't perspire—cows don't fly—and horses don't have feathers. Ten years ago this Continent zoomed in the high gear of business prosperity. In 1929, in spite of the financial debacle of the collapse of market values in October, the total annual income of the United States was estimated at 81 billion dollars for 122 million citizens. Ten years later, in the seventh major oscillation of our physical operations, with nine million more population, the political administration in Washington announced that these United States will arrive at national prosperity as and when an 80 billion dollar national income is attained.

It was further affirmed that with such an annual national income the revenues of the federal government would be increased to such an extent that the national budget would be balanced if this national income was maintained.

This is both an interesting statement and a frank admission. It is a frank admission that the people of the United States must expect a lower per capita income than that which occurred in 1929. In spite of all the promises of the New Deal, it is obvious that the national administration not only proposes but hopes for no more than to deal the people of these United States downstairs to a lower standard of living.

Technocracy wishes to impress the significance of the change in national and Continental conditions in the last ten years. The significance of that change is that in 1929 private enterprise in the United States was able to create sufficient new debt to finance the expansion of its capital goods industry so as to pay out sufficient purchasing power in the form of salaries and wages to obtain an apparent equilibrium of purchasing power resulting in a national income of approximately 81 billion dollars with 1,800,000 unemployed.

But since 1929 every conceivable device has been used in the inflation of our national credit structure; every attempt and every device has been instigated in the fervent hope that there was some magic, some legerdemain, some smart trick by which our national economy could pull itself out of what business and government termed an 'emergency.' (Even the word has been abandoned, its very abandonment an admission of its permanence!) Ten years, wherein the greatest minds of America and its national leadership are not ahead of where they were ten years ago, but are behind! *Not only have they failed but the existing state of national conditions today, politically and economically, is a tacit acknowledgment of inability and incapacity to solve the problems facing this country and this Continent.*

Another Paradox

The financial institutions of this Continent are no longer in danger of death through national frigidity. They can no longer fail. Private enterprise is denied even that prerogative. Foreclosure of the doors of our national institutions through public hysteria is dispensed with forever. The financial institutions of the United States today have ever greater total deposits and are in an astounding liquid position. Their struggle at the present time is to prevent themselves from drowning in their own liquidity. From 1929 to 1933 they were getting stiffer and stiffer; but in 1939 they are getting wetter and wetter; in fact, they are 'all wet.'

The government of the United States in bringing about the temporary salvation of business enterprise has ushered an ironic paradox into the business world, namely: in business enterprises of such large-scale operation as banking, insurance, real estate, railroads, or public utilities, the larger entities are in the nature of national public utilities and therefore no longer have the privilege of ceasing operations even if running at a financial loss. The inalienable right of private business —that if it does not make a profit it can in its rugged individualism cease all operations—has been thrown overboard.

Profit or no profit, railroads must run; profit or no profit, public utilities must function; and no matter how liquid the banks, they must be more liquid so that the government can oblige them by borrowing their liquidity from them, so much so that the taxation and the insurance on deposits is now compelling the banks to pay the government for the unique privilige of borrowing the bank's money. Who ever thought that the day would arrive when bankers would pay someone outside of their profession to borrow their money from them? But alas and alack that day is here.

Business screams at government that the reason it cannot invest its surplus funds is due to the lack of confidence and the uncertainty of government policy. National government begs business to come on out and finance prosperity, but the joker in the deck is that prosperity is no longer profitable. Now, in 1939, with over 21 million citizens on relief, with over 12 million unemployed in the United States, we propose to save the nation by having the government of these United States make another attempt to finance prosperity into existence so that business will come out of its timid ways and really do the right thing by our Nell.

Sad to say that, underneath, the advance in the technological production of physical wealth has been such since 1929 that we are now capable in this country of producing more physical wealth than we did ten years ago with fewer man-hours than we used then. The technological equipment of the United States today if operated at anywhere near capacity-rate would run to full inventory in less than ten month's time with over four times the unemployed we had in 1929.

It is only natural for the reader to ask: 'Why 80 billion a year income? Why not 90 to 100 billion a year income?' Like grapenuts, there is a reason. In 1937 our national income did not equal that of 1929 and yet we arrived at fuller inventories in less time in 1937, with over ten million unemployed, than we did in 1929 with 1,800,000 unemployed. From September, 1937, to May, 1938, the physical operations of the United States dived faster to lower levels than ever before.

Does the march of events teach our national leaders nothing? Are they blind to the fact that our rate of production of physical wealth is now capable of such an acceleration that the moment the rate of production of 1929 is approached or equalled the national situation becomes acutely critical; while if the 1929 rate is exceeded, we will be faced with an immediate downward oscillation of a far greater descending amplitude than that of 1929? And yet government and business go blithely on, promulgating the doctrine of prosperity as the solution to our national ills.

Prior to 1929, 60 percent of all corporations doing business made profits. Since 1932 less than 30 percent of all corporations doing business have made profits. The tendency ahead is for still fewer corporations to make profits. How much money do businessmen in the United States have to lose before they become convinced that the old game won't work any more?

The national government through its labor relations acts attempts the palliative of legislating increased purchasing power by putting a floor under wages and a ceiling to hours. The floor turned out to be mud and the ceiling full of holes. Theoretically, the intention is fine but the net result in practice is to increase the labor costs of all employers. The natural result follows that all large employers who can avail themselves of participation in the national credit inflation will install new processes and more technological equipment to further reduce their payrolls and increase their productivity and thereby reduce their capital pay-off time. As an ostensible compensation check-device against this general occurrence, the United States government as a popular political measure will increase the ranks of its social security recipients. Only a D.T. patient tries to drink himself sober, and spending our way to prosperity as an escape from our national problems is but an ultimate arrival at Continental D.T.'s.

Americans Must Act

Ten years have gone by—a decade of defeat. Canada and the United States are the two greatest entities on the greatest Continent on earth—a Continent possessing resources, land, climate, technological equipment and a trained personnel more than sufficient to institute the greatest human society of all time, a Continental complex that must provide the leadership for the civilization of the western world. And yet this decade of defeat has but demonstrated that the democratic administration of these United States and the liberal administration of Canada is inadequate, incapable and has brought forth nothing except the bastard temporizing of business and politics. This decade of defeat for the first time has made apparent to the people of this Continent that the political and business leadership of this Price System does not deserve to survive. The national leadership of Canada and the United States in this decade of defeat has been the emulation of the louse. Technocracy states that it is high time that we de-louse America, and why not!

Technocracy's Specifications for Harnessing America's Rivers

Power for a Continent

By L. M. Dickson (CHQ)

THROUGHOUT history men have been plagued with the problem of generating power, and today on this Continent not only are men still working on the problems of power generation, but they are plagued with the now more significant problem of transmission.

The story of the development of society—a story of energy—could be said to be based upon that one chapter—transmission. Man's physical progression is a direct function of his increasing use of energy and its availability over ever-wider areas. Man was his own first engine. He could dig roots, heave rocks, kill animals, and perform other crude tasks not requiring a great expenditure of energy; but, aside from the limited capacity of the human body, the salient feature of this stage of man's development was that the energy converted could only be used immediately and *on the spot*. He could not transmit it from one place to another. Not for thousands of years was he able to overcome this handicap. Not for thousands of years was he able to visualize the utilization of the power of an entire Continent being made available over Continental Areas.

When he used cattle, horses, and slaves at hard work for long hours he converted more energy but the limitation remained: he had to move his energy converters to the scene of the work for the energy could not be transmitted. Other historical developments in the production of power were windmills, crude water wheels, and sails for boats, but the use of energy was still limited and confined to within a few feet of the point of generation.

Then in the eighteenth century came the first practical steam engines. A parade of names passed by—Savary, Newcomen, James Watt, Corliss, Parsons, De Laval. The problems of generation were being solved. Man's status began to change from a toiler in scarcity to a producer of abundance, but yet he had a long way to go for the generation was crude and the transmission still limited to but a few feet. However, the range was extended, for in 1850, in Alsace, one C. F. Hirn transmitted 300 horsepower a distance of 6,500 feet by a series of wire ropes running on pulleys or wheels. His ropes ran 62 feet a second and his pulleys were 177 inches in diameter.

With the development of electricity man's power horizon widened. Galvani, in 1780, discovered electric current when working with frogs' legs. Twenty years later Volta produced electric current by chemical action. Others made further advances—Davy, Oersted, Ampere, Ohm, Franklin. In 1831 Faraday produced the first electric generator with the history-making discovery of electromagnetic induction, making possible the generation of electrical energy and opening up the problem of transmission.

On the North American Continent (which is to see the first extension of power availability from the original microcosmic scope to Continental dimensions) the march of power transmission was speedy and relentless. In 1882 the first central electric station was constructed—Edison's Pearl Street Station in New York. It lit incandescent lamps in an area of one square mile. Other plants for lighting were built in the eighties although the area of service was small on account of the voltage employed being 110 and 220.

In 1890 William Stanley and George Westinghouse developed the A.C. system, using at first voltages of 220 and 440, which allowed a distance over wider radii for the plants. Soon 2200-volt systems were built, using transformers to reduce the voltage for the consumers, and service was extended to the residence sections of cities. In 1889 the Tesla induction motor was brought out. Among other things this made it unnecessary for small manufacturing plants to have their own power plant. But 2200 volts still limited the area over which a power plant could give service, and in the early nineties we find the voltage increased to 11,000 to transmit power from a water-power plant in the mountains to Pomona, California, 18 miles away! In 1895 a system using 11,000 volts was installed on the American River at Folsom to transmit power to Sacramento.

The voltages for transmission increased to 22,000, 33,000, 44,000, and in about 1898 the transmission of power at 60,000 volts was planned by the Standard Electric Company of California. About 1908 transmission voltages of 100,000 were used. In some of these, transmission exceeded 150 miles and the amounts of power reached 30,000 horsepower per line. Then a line for 165,000 volts from San Joaquin River to the Los Angeles district was built—a distance of 240 miles; later came a 220,000-volt line from the Pit River to San Francisco.

In 1936, with the installation of the world's largest generators at Boulder Dam, power was sent by 285,000-volt, double-tower lines a distance of about 300 miles into Los Angeles, and today in many places on the Continent some large regional networks exist which extend over areas of several hundreds of miles.

From a Part to the Whole

America is on the threshold of its age of super power. Its age of super power will be based upon the development of the great undeveloped hydroelectric power sources of the Continent lying mostly far from our centers of population, manufacturing, and raw materials. We have on this Continent the greatest river and lake network in the world, almost all of which can be connected into a waterway system for transportation, irrigation, and power. By a system of canals, dams, and locks, America's rivers and lakes will be inter-connected to provide waterway transportation from the Gulf of Mexico to the Arctic and to the Pacific. On practically every one of these rivers, from the Yukon in the north to the Alabama in the south, power can be generated. Most of America's potential water power lies in the north—the Northwest Territories of Canada, Alaska, the Yukon, British Columbia, Manitoba, Ontario, Quebec, and Labrador; another large area embraces Washington, Oregon, and California; another the southern Atlantic states.

If human society on this Continent had to depend upon localized power the potential abundance of the New America would never be realized. To drive the tools of industry, supply traction, illumination, communication, and entertainment for the North American Continent in an era of abundance, those far-away power sources must be utilized. As power and technology have created our civilization, so must we use more power and technology in the future. The 171,000,000 people of this Continent will have to be rehoused. Our entire production, transportation, and living facilities will have to be redesigned and reconstructed. An abundance of food, clothing, housing, recreation, and travel will have to be provided the entire population. This will require power in its new dimension—veritably the power of an entire Continent for the people of an entire Continent, and in the modern development of power transmission lies the fulfillment of North America's destiny.

America's Need

Technocracy proposes a Continental system of power generation and transmission. New dams and power plants, some exceeding Boulder and Grand Coulee, will be built. Equipment of unprecedented sizes and capacities will be installed. Thousands of miles of main transmission lines criss-crossing the Continent will be laid. All power-producing areas will be tapped and all consuming areas will be served. A network of secondary lines will join the main ones and North America will be embraced in one mammoth electrical system.

Technocracy presents the outline for the utilization of our hydroelectric energy resources in a Continental system of power generation and long-distance transmission, knowing that only the unrestricted application of technology can accept or execute the specifications. The magnitude of the project is entirely beyond the realm of business, finance, and political government. When technology moves up to this order of magnitude the 'thought processes' and initiative of the Price System are paralyzed. Financing on that scale would be impossible and so would management under the individualism of the Price System. Technocracy knows that no Price System enterprise, governmental or otherwise, can accept or even consider these specifications. And Technocracy realizes that only functional control under technological direction on a Continental basis could administer such a system.

America's trained technologists are numerous enough and experienced enough to build and install a Continental power network. America's technologists have been working on the problems involved in power transmission, and today the way is open for the transmission of electricity for distances of 3,000 miles and more! Up until today 300 miles was a great achievement, but technology's advancements will annihilate distance and make it possible to bind this Continent into one indivisible unit.

Early Transmission Proposal

Fifteen years ago a method of overcoming the limitations of electrical transmission for long distances was proposed. In the spring of 1924 the original work of a Continental power transmission system, forming the basis of the system here proposed by Technocracy Inc., was done by Howard Scott, now Director-in-Chief of Technocracy Inc. At that time Howard Scott was Consulting Engineer for the Department of Architecture of the State of New York under the direction of Sullivan E. Jones, State Architect. Assigned as assistants to Howard Scott were Frank Lord and William Foster, engineers of the State of New York. They were assigned to draw up a power transmission report for the State which was to form the basis of a New York Power Authority. The work was done in an office of the State of New York in the Flatiron Building in New York City.

Realizing that power was more than a local problem and that the future would certainly extend it to unheard of proportions it was obvious that the limitations of transmitting electricity by alternating current must be overcome to make the power available over long distances.

Howard Scott therefore recommended that plans for Continental distribution be perfected. To accomplish long-distance transmission he proposed that direct current be used. Maps showing a network of transmission lines across the Continent were prepared and a large quantity of data collected and collated.

In 1939, in the January issue of *Power Plant Engineering,* the late J. D. Ross, engineer, and Bonneville Administrator said: 'The whole nation can have Columbia power in its factories and homes. This statement is past being a prophecy. It is a fact. This can be accomplished by the use of direct current transmission.'

The Specifications

Technocracy Inc. herewith presents its preliminary specifications for the transmission of power, not only throughout the United States, but anywhere on the Continent of North America. These are presented, not to any local or national political body, but to the technologists and people of the North American Continent.

These specifications are as outlined in the following paragraphs.

The power shall be generated by presently installed-type equipment, which is mostly 60 cycle, 3 phase A.C., at generator voltage, and shall be stepped up by transformers to 1,000,000 volts, 60 cycle, 3 phase A.C. It shall be converted from 1,000,000 volts, 60 cycle, 3 phase A.C. to 1,000,000 volts D.C. by tube converters.

All main transmission lines will be 1,000,000 volts D.C. The transmission cables will be 2,500,000 c.m. copper conductors or aluminium equivalent. These conductors shall be carried underground in the same manner as a pipe line, using standard specification oil pipe line for the outside. Inside shall be pyrex glass pipe centered within the steel pipe line by glass pyrex rings. The pyrex glass pipe, surrounding the 2,500,000 c.m. conductor, shall be of such a diameter and of such strength as to carry sufficient nitrogen gas under pressure to act as a primary insulating medium immediately surrounding the copper conductor. The conductor shall be centered within the glass pipe by skeleton glass rings. The space between the pyrex glass pipe line and the steel pipe line shall be filled with oil of the required dielectric property and dyed so that in case of leakage the color will show on the surface.

This 1,000,000-volt pipe-line transmission system will be built in duplicate, otherwise known as two circuits. Direct current carried at 1,000,000 volts can be transmitted 3,000 miles with a line drop of approximately 0 percent.

A Continental power transmission system so designed would enable power to be shifted instantaneously to meet any Continental emergency or demand. It would render power so cheap that the present system of selling and purchasing power by private utilities would not be tolerated, as the cost of installing and reading meters, and billing and accounting to individuals would involve far more human effort for these operations than would be required for the entire power produced on this Continental network.

Secondary distribution of power would utilize the existing secondary lines. The 1,000,000-volt D.C. pipe lines could be tapped at any point into converters and converted to 60 cycle, 3 phase alternating current and stepped down to the required secondary voltage, thereby rendering unnecessary the scrapping of any existing secondary distribution equipment. The Continental power system would therefore utilize all of the generating and secondary switching, transforming, and distribution equipment now in place.

Thus physical advancement is bringing to the point of realization the process and the network outlined 15 years ago by the Director-in-Chief of Technocracy Inc. On this Continent the progression from isolated batch processes to integrated technological sequences is integral in the Continental physical structure; that is, the physical structure of this Continent tends toward the operation of the Continent on a Continental basis. Parallel with this is the inherent tendency of technology to expand its operations in a one-way progression from one magnitude to the next greater one. The end is reached when it embraces and includes the entire physical system wherein it operates.

America's Rivers

It has been estimated that the present installed hydro-electric capacity of the United States and Canada combined is 18,945,976 kw.,* while the total potential capacity of the two countries is estimated at 92,280,200 kw.† This, however, does not include additional power which would result from the development of a Continental Hydrology. The preponderance of the undeveloped power is in Canada.

The rivers of America which carry this power are unique in their length, flow, and configuration. In the north we have the Yukon rising in Canada and flowing through Alaska to the sea. East of that and also flowing north is the mighty Mackenzie. Neither of these rivers have been adequately surveyed. Their potential capacity would doubtless run into millions of kws. Indeed, few of the rivers in Canada have been fully surveyed. The Canadian estimates are based only on known and thoroughly surveyed sites. No consideration in the estimates is given to the unsurveyed rivers or even to power possibilities on rivers of gradual descent where dams could be built. Canada's developed power sites plus the undeveloped sites *which have been surveyed* could produce 229 billion kw.-hrs. per year at 80 percent of capacity. But this is only a fraction of the ultimate possibilities. Other great Canadian rivers are the Peace and the Athabasca which are tributory to the Mackenzie. On the plains, flowing eventually into the Hudson Bay, are the Saskatchewans, the Nelson, and the Churchill. The latter two rivers are rated at nearly 5,000,000 horsepower by present surveys! British Columbia and eastern Canada teem with great rivers—the Fraser, the St. Lawrence, and others unnamed plus those in Labrador.

In the United States there are 22 rivers that could produce an annual output each, ranging from a minimum of two billion kilowatt-hours in the Savannah to a maximum of 66 billion in the Columbia. There are altogether 1,183 known undeveloped water power sites in the United States.‡ The total, potential, estimated annual output of the rivers of the United States is 418 billion kw.-hrs. at 80 percent of capacity. Sixty-four percent of this is in the Pacific southwest and northwest. This then, would provide the basis of America's power network under a Technocracy.

A Further Glimpse of the Network

A Continental power transmission system designed to meet the specifications herein set down would enable the development of hydroelectric sources on any part of the Continent. In the north lie vast sources of power, much greater than the immediately surrounding areas will ever require. The power surplus, after meeting all requirements in those areas, will be available for transmission to other parts of the Continent where population density will be greater. The power from these vast sources of the north will therefore be sent

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* United States—17,284,000 H P.—*Statistical Abstract of the United States.* Canada—8,112 751 H. P.—*Canada Yearbook.*

† United States—80,000,000 H P.—*Statistical Abstract of the United States.* Canada—43,700,000 H. P.—*Canada Year Book.*

‡ Fed. Power Comm., Nat'l. Power Survey, *Interim Report, Power Series No. 1.*

to the southern portions of the United States, and the power generated in the southern portions of the United States will be sent still further south to Mexico, Central America, and the Panama where there is need of power and insufficient resources.

In this manner, the power of the Yukon River will be developed and sent to Los Angeles if necessary. Power from the Nelson and the Churchill in northern Manitoba would be available in New Mexico. Power on the Peace and the Athabasca will be developed. (At Hudsons Hope on the Peace River near the boundary of Alberta and B. C. is a site which it is estimated will develop more power than Boulder Dam.) In Labrador we have the little known Hamilton River with its Grand Falls. This stream drains a high plateau from 1,000 lakes, cuts through a height of land, and after falling 750 feet in 12 miles takes one stupendous leap of 316 feet. This is only about 150 miles north of the shore of the Gulf of St. Lawrence. Over 1,000,000 horsepower is continually running to waste over this one fall and no attempt has been made to harness it. Two other rivers within 25 miles leap over the same fault in the rocks.* Power from these sources would be available in Tennessee or Mississippi.

The great Fraser River of British Columbia will be developed. Power from giant Grand Coulee, Bonneville, and from other sources on the mighty Columbia will be available in Los Angeles and in other southern cities. From Boulder Dam in Nevada, from the Sacramento River in California, power will go into Mexico and Panama. And from the mighty sources now being developed by the Tennessee Valley Authority will come power that also could be sent as far as Panama. East and west, north and south across the Continent will go the network of main transmission lines with its system of secondary distribution lines and equipment.

A New America for the Asking

Abundance and security have not been realized by the people of North America. What abundance we have—and it is far greater than that enjoyed by any other peoples—is because of our technological developments, developments which have occurred in spite of the incentives of business. America has not been built by business and democracy, but by technology; and the point has been reached where America can progress no further as long as the restrictions of business and democratic government remain. The Price System limits the development of our great reservoirs of power.

Business and democratic government cannot release the teeming resources of this Continent. The regimentation of the people under a proletarian hierarchy cannot release them; neither can the suppression and regimentation of the people under a fascistic dictatorship. America's future lies only in the further application of technical science to all processes of production and distribution. Technology has but to maintain its grand march and be extended to all social processes on this Continent and we shall see a civilization the like of which mankind has never known. The power of the Continent will become fluid and available every minute, every second of every day.

* *Encyclopedia Britannica.*

Just One-Third of a Nation?

Relief Becomes Big Business!

NOT so long ago that race of vanishing Americans—the millionaires—achieved immortality of a kind by donating a few paltry hundreds of thousands and even millions of dollars to the poor of the land. Technocracy pointed out that private philanthropy would be completely overwhelmed by governmental philanthropy, and that day has indeed come to pass.

Governmental philanthropy is now big business. It is a business which far exceeds every other business in the land. It employs almost a million people to administer it. It has clients numbering in the scores of millions. It receives and spends its money by the billions.

Because of this, business of the old order is alarmed. Business blames this condition on government (and government blames business). In 1938 the expenditures for direct relief reached an all-time high. The President of the United States estimated in his budget message that federal expenditures for relief this current fiscal year will be at least 37 percent greater than last year. Relief has not yet reached it maximum, but business has. It is now seeking to curtail this rival and to put relief on what it terms 'a permanently practical basis,' not noticing that in accordance with its own maxims, relief, being an expanding institution is already on a 'practical basis'—practical, but alas, not permanent!

Just how large is public philanthropy? An estimate of the Social Security Board pointed out that in November, 1938, there were 21,300,000 citizens of this land of the free and the home of the brave on one or more forms of direct public relief—federal, state, and municipal. This is a multitude of people almost equal to one-half of the population of Great Britain. It means that there are several times more people on this Continent suffering destitution and economic persecution than all the politically persecuted minorities of Europe combined. These 21,300,000 people are the thorn in the side of business and political government. They are also the answer to the lie that we shall have abundance and security under the Price System, for even the productive levels of 1929 would not remove them from the relief rolls.

These receiving *direct relief* however, are but the first contingent. The taxpayer (who is declining in numbers each year) must also supply the payroll for a second, third, fourth, and fifth army, adding enormously to those forced to live on the public purse. The first of these is a horde of 841,937* war veterans with their families. Falling in line behind them comes the actual armed forces of the United States—another three-quarters of a million—consisting of 638,899* men and their families, plus 7,216 R. O. T. C. members, 154,523 R. O. T. C. students, and 35,831 C. M. T. C. members, all of whom get various prerequisites.

* *Statistical Abstract of the United States, 1938.*

In straggly formation behind them comes the largest collection of governmental bureaucracies in all history, greater even than the war-time number of civil employees. This contingent numbers over 3,800,000 public employees—federal, state, and municipal—plus their families.† The federal government also dispenses largesse to a group of 137,000 individual cases through the Railroad Retirement Board.

The grand total of this second group is 5,615,000 cases. With a conservative estimate of 3.5 persons per family this comprises a total of 19,652,000 to be added to the force of those directly on relief, making a collective body of 40,952,000 individuals living directly upon the expenditure of public funds.

These forty million nine hundred and fifty-two thousand people are entirely dependent upon the power of taxation of the various governments. The problem cannot be dismissed by blaming it on the New Deal government, as it is not a New Deal development. Any political government—republican, democratic, liberal, conservative, communist, or fascist—today in the United States or Canada would have to support an equal number of people in some form or other. The productive mechanism of this Continent is geared to such a level of technological proficiency and productive excellence that these people are no longer required to operate it. They cannot all be hairdressers, waiters, butlers, cooks, and movie actors, so they must perforce receive their living elsewhere. Only the central government can supply it by the federal dispensation of purchasing power shed down through all of the various agencies. It is apparent that the Price System with all its institutions face to face with a major calamity.

Partial Dependents

We have 6,000,000 farms in the United States, and in 1938 a total of 3,744,000 of them received A. A. A. checks from the government either to stop them from growing too much or to pay them for food products which no one else could buy. At 3.5 persons per family this creates another horde of 13,104,000 persons who received at least a part of their income from federal philanthropy, or more correctly, from the biggest business organization in history.

Then we have the Social Security Act. Under its dispensation, over the 12-month period of 1938 a total estimated at 9,679,000 cases received some kind of compensation for being unemployed either wholly or part of the time. At 3.5 persons per case this provides partial assistance to 33,876,000 persons. The total of those receiving partial assistance from the government arises to 46,980,000 human beings. You will not find these totals in your daily newspaper—all in one place. They are too ominous. They would not assist the return of 'confidence.'

These 3,744,000 farmers and nearly 10 million social security recipients are employed either all or part of their time in private enterprise. They are the people whose annual income is so low as to be almost incredible. They are 'the one-third of a nation' which is ill-fed, ill-clothed, ill-housed. They are the subsistence farmers, the cotton share-croppers, the poor industrial workers. By thousands they are being shoved over, with their millions of dependents, into full time, direct relief.

† National Municipal League.

It is too late for business to become alarmed. There is nothing that either business or government can do about it. The odds are too great.

A Long-Term Trend

We have, on the one hand, this expanding enterprise of relief with its terrific financial burden. We have, on the other hand, the daily advance of technology making it possible to produce more and more goods with fewer and fewer men.

Says John M. Collins in a *New York Times* dispatch: '..... it has been estimated officially that displacements in the entire south have been between 500,000 and 1,000,000 families.'

He is referring to displacement by mechanization, and he says 'families' not individuals.

This is what is happening to the United States. To a parallel degree it is taking place in the Dominion of Canada. An illuminating *Canadian Press* dispatch from Montreal quoting a report of the Canadian Welfare Council said: '..... an abiding weariness, a fatigue, seems to be upon the land, a grim acceptance on the part of the taxpayer that "relief is here to stay"; a terrible tragic apathy on the part of the people that, "Well, we'll never get work again, anyway."'

The popular conception that this is a phenomenal state of affairs which will be righted by a return to the trend prior to 1929 is losing its grip. After ten years of plainly increasing relief loads the people of America are not so prone to believe that any such return is possible. They have sensed that we are on our way out—to something new, and they are correct, for this is no new trend. It did not begin even in 1929.

A study of trends in relief, made by the Works Progress Administration,* reveals that there has been a strong upward trend in relief expenditures since 1910, and that the trend since 1929 is only an acceleration of what was happening previously. In sixteen large cities in the United States the expenditures for 'outdoor relief' increased from $1,559,000 in 1911 to $20,014,000 in 1928. This was before the so-called depression. It was shown that after the 1921-22 depression, relief expenditures did not return to the predepression levels, but continued to mount in subsequent years. Since 1929 the pace has been accelerated. It will continue to increase. When 40,000,000 people are receiving direct relief what will happen to the Price System? America will stand in need of a new statesmanship and a new vision.

Technocracy proposes no solution to business and politics for this 'relief problem.' Technocracy's spokesmen have pointed out this trend for twenty years and have stated that nothing could be done to arrest it. The business of relief can only continue to grow until the burden becomes completely intolerable and the financial and political institutions of this Price System break under the strain. America will then face its great social crisis and the people of the Continent will be compelled to abolish the system which makes them recipients of a parsimonious charity. In its place they will install a system which has no room for this mockery in a land of abundance. They are preparing for it now. The march of events in America is training its new statesmanship.

* *Trends in Relief Expenditures*, 1910-1935

Youth!

By William Janis (R.D. 11353-1)

IN Canada there has arisen a youth group—one of many for young and old. Its rise tells a story of youth seeking an answer to its destiny in the flux of these changing years—a story of an organization loosely strung and without crystallized objective, arisen out of the insecurity of the day, out of the specter of unemployment and the threat of war. It is a tragic story of youthful energy lost in the swamps of futility, dissipated in the compromise of out-of-date ideologies, and lost in the ghost-winds of the social theories of yesterday. Technocracy tells the story without censure or antagonism and challenges the youth of North America to look at their problem from a cold and factual standpoint.

I

The Canadian Youth Congress arose spontaneously, if aimlessly. It was founded chiefly by the efforts of scattered youth organizations. The first national Congress, held in Ottawa, May, 1936, was brought about primarily through the efforts of the Vancouver, Toronto, and Winnipeg Youth Councils. To this Congress were invited delegates and representatives from all of the varied youth organizations of the Dominion: political, geographical, trade union, student, religious, educational, and racial—all dissatisfied with the operations of the present regime.

The purpose of the Congress, its leaders explained, was not to find where the youth of Canada differed, but rather to find where they agreed. The Congress aimed to become the 'clearing house' of the opinions and credos of Canadian youth. It was described by Norman Levy, the Chairman of its Continuations Committee, as 'an outward expression of the spontaneous reaction on the part of youth to existing conditions . . . . The youth organizations of the country, while preserving inviolate their identity, have built together through the Congress a common program and a great unity.'

Thus were laid the foundations of a political Frankenstein.

II

In May, 1937, the second Canadian Youth Congress was held in Montreal. It included one thousand delegates, bringing in for the first time the delegates of French Canadian organizations. This inclusion of the French Canadians meant that the Congress was to follow the traditional pattern of Canadian parliamentarianism: it was to be bilingual and split on racial and religious grounds. We see the political pattern arising immediately.

This second Congress was watched more carefully by the political regimentia of Canada, for here was, or seemed to be, the nativity in the Canadian scene of a new and vital force—a political force—and where there is the hint of a new political force the vultures are sure to draw nigh. The first Congress was in the nature of an experiment; the second was proclaimed to be a success, an achievement.

Being in Montreal, this second Congress was held in the heart of French Canadian tradition where youth activity is carried on under strict surveillance. Since in the Congress there were many delegates from the communist, socialist, and other 'radical' youth organizations, it was inevitable that there should arise a conflict. The break in the evident tension was realized when the French Canadian delegates presented seven points to the Congress with the stipulation that these seven points be agreed to unanimously if the French Canadians were to remain in the Congress. The storm rose and the ship veered sharply toward the rock of disaster.

The first blast was the French Canadian request for a representation of at least one-third of the total delegate strength of the Congress and the Continuations Committee. The resolution then moved that the Congress proceed according to the established principles of democracy. It demanded that the Congress confirm its belief in God. It asked for an affirmation of the right of individuals to private property. It wanted a recognition of the sanctity of human personality. And finally, the resolution demanded that the Congress condemn 'subversive' doctrines. The storm roared on; the rocks and reefs of disruption came close; it was a dangerous hour.

But the Canadian Youth Congress discovered that in *compromise* there is strength (the strength of combined weakness). Embroiled from the start in controversy it quickly made the discovery of that remarkable faculty of liberal discussion: that one can discuss interminably and never arrive anywhere.

Because the word 'subversive' was not more explicitly defined, the Congress seized upon this anomaly of language to pilot the craft through the raging seas of clashing opinion. The communists interpreted the word 'subversive' to mean fascism and on that premise voted in unison with the French Canadians who had intended the word 'subversive' to apply to communism. When a further move was made by the French Canadian group to have the communists expelled, there was sounded the invocation that the Congress had pledged itself to democracy and so the great battle for unity was won. The entire Congress voted unanimously in favor of the seven points. Liberalism triumphed. No problem had been stated; no issue defined; and no solution discovered. Calm prevailed.

Here on North American soil was a minor clash of two alien philosophies, and when this struggle of Marxian manifesto versus nationalistic minority was settled agreeably to all, it was ironically hailed as a great victory. For whom? For Canadian youth? The hell it was. Canadian youth was still unemployed and insecure, and still did not know what course to pursue or where to go.

A Story of Futility and Disillusionment in Canada—and a Clear Cut Road Pointed Out By and For the Youth of All North America

III

In May, 1938, the third Canadian Youth Congress was held. This time it was held in Toronto and the French Canadian youth were forbidden by the Church to attend as official delegates of Catholic youth organizations. Many French Canadians, however, attended as private individuals.

To this third Congress were read the greetings of prominent Canadian politicians. The heady wine of success! Although the Congress has maintained steadfastly that it will not become a political football, the serenades sounded in its ears. At this third national convention the Congress reiterated its stand of democratic liberalism, thus placing itself in still more dire danger of succumbing to the sweet music of the political voluptuaries and, like so many other virtuous social organizations that have been built on the same foundations, it will probably go the way of all political flesh.

Still without a definite objective and still drifting, the Youth Congress began however to take shape as a 'pressure' group. Some short-term 'objectives' were evolved. It was through pressure exerted by the Youth Congress that physical training centers were established in some of the provinces of the Dominion and it was also through pressure that other palliative measures were introduced, such as the reestablishment of educational programs for unemployed youth.

The Youth Congress launched into discussion and debate concerning multifarious aspects of certain phases of Price System operation. It discussed collective bargaining and minimum wage acts. It recommended better regulation of workmen's injury compensation. It recommended the establishment of educational clinics for the dissemination of information on venereal disease and its prevention.

It recommended everything that is the essence of contemporary liberalism—all 'worthy' causes. It failed to realize that it was faced with a problem which could not be solved by compromising opinions. And last but not least, it stressed that which has been stressed by all the moral philosophies of the past seven thousand years—that in the attainment of the brotherhood of man, that in the universal establishment of all-pervading altruism is to be found the philosopher's stone to the ideal heights of an anthropological evolution.

It is out of the insecurity, the frustration, the fear, and the maladjustment that these many protest movements of today arise. The youth of Canada sought to step forward and find for itself an answer to this demoralizing problem of political, economic, and social disintegration. The youth of the United States have done likewise. It is life and courage that drive the youth to attempts at organization; it is enthusiasm that urges them to organize on a national scale though sorely pressed for finances. But they are all floundering in the same confusion that they wish to escape and in that confusion they smother that which they seek to find.

By virtue of their tolerance have the youth of the Congress damned themselves. Like their parents they have found a thousand problems where only one exists. The wages and the insurance, the fear and the maladjustment, one and all are composite factors involved in the existence of this Price System, but they do not constitute the problem. They are but symptoms and the Congress has failed to go beyond them.

The problems of youth in this country and on this Continent cannot be solved by the rationalization of anachronistic concepts nor by the compromise of conflicting social theories and ideologies. Neither factual decision nor unanimity of action can be achieved through the virtuous dissertations of individual opinion.

On this Continent technology is forcing a situation without precedent or parallel. Technology is rendering obsolete the parliamentary procedure of political institutions. It is rendering futile any attempt to arrive at social decision through a consensus of opinion.

Yes, unemployment was stressed by the Youth Congress as being the major problem of the day. But was there any attempt to learn factually the nature of the trends that are forcing a greater and greater unemployment? Was there any analysis of the implications of the advance of technology on this Continent? The social future of North America is arising out of the technological trends of the Continent. In face of the rate of acceleration in the installation of technology, the attempts to re-employ youth through reestablishment schemes are doomed to failure. Reestablishment schemes for youth on this Continent can only become bigger and better relief projects; for in essence, that is what all youth reestablishment programs have been to date.

From School to —— ?

The final report of the National Employment Commission, issued January 26, 1938, showed that by the 1931 Dominion Census 871,000—or approximately one-third —of Canada's 2,500,000 wage earners were between the ages of 16 and 25.

It shows further, that 29 percent of all the unemployed were in this age group.

In September, 1936, registration totals show that there were 67,000 persons between the ages of 16 and 25 receiving aid, this figure not including those persons on agricultural aid.

Of these 67,000 young people, 12,500 were reported to be heads of families, 3,800 were single individuals, and 51,000 were dependents of families.

Of the dependents, 36,000 were reported as never having been gainfully employed.

In 1936, there were enrolled in the provincial public schools of Canada (excluding Quebec Province) 352,962 students in the grades eight to twelve inclusive. Enrolled in grade eight were 129,091 with a median age of 14, and enrolled in grade twelve were 25,932 with a median age of 18. Analyzing the figures year by year, through the grades from eight to twelve, we find that approximately 103,000 young people from these grades leave school annually—an army of young persons released each year to find a place in the physical economy. These thousands of young people, educationally conditioned to erudite futility, are poured out of our educational institutions each year. And of what use is their knowledge of the Westphalias, the Waterloos, and the Delphic Oracles? They are seeking for jobs!

How many of the young people who find jobs are doomed to dead-end employment, i. e., tasks of small remuneration and with no possible hope of advancement? Trapped like a climber on a cliff they dare not move for fear they fall. How many thousands of youth on this Continent are 'gainfully employed' selling baubles, bibles, and magazine subscriptions on commission? How many are 'gainfully employed' on the farms of this Continent earning their meals, their overalls, and their integrity of character through close association with the morality of toil?

The Canadian Youth Congress is to be commended on the fact that it realizes the necessity of research. At its headquarters in Toronto is maintained a voluntary research staff of youth. In the near future the Youth Congress intends to conduct an intensive survey into the actual status of youth unemployment by means of a house-to-house canvas. In a report issued December 7, 1938, the research bureau of the Congress maintained that there were 400,000 Canadians between the ages of 15 and 30 unemployed, or 15 percent of all the Canadians in that age group. The report further maintained that, of those young people who were working, the average yearly wage was $760, and that of the farm youth less than $500.

WPA, Here We Come!

A yet different aspect of the situation is shown by the Dominion Bureau of Statistics' survey on the dependency of youth. It is pointed out in this report (based on 1931 census figures) that the growth of large-scale production in place of the small independent trades and industries during the past two decades has had a distinct effect on male youth employment. Large-scale production and distribution is eliminating the chances of young men in establishing their own business. More and more they are dependent for jobs on large firms. And the hard physical work which is still done, in spite of technology, is done by immigrants and by older men, less educated men, who outbid the youth for the jobs. On the other hand, technology, that executor of strange deeds, is even now busily engaged in eliminating the office worker.

As more technology is installed, and as the operation of this Price System becomes more critical, the youth of this country and this Continent will only find a temporary security in that one expanding quantity of our economy, the relief line. That relief line may be in the guise of a youth training program, a youth rehabilitation program, or a public works project . . . but it will be, fundamentally, a governmental handout. *It is this relentless progression that is driving youth to face greater insecurity in the future.*

How ironic and real was that slogan of an American high school graduate body, 'WPA, Here we come!'

Let the Dead Past

This then is the proposition. Technology is forcing the most fundamental social change in human history. For seven thousand years there has existed a Price System, and each rising generation could find its future, impoverished as it was, in that Price System. Technology, in its relentless and irreversible advance, is smashing the Price System. Technology is eliminating any chance of a future for youth in the Price System.

The attempt to force palliative measures by 'pressure' exerted on the political powers-that-be is a dissipation of energy in trying to find a future in the Price System. The youth of this country and this Continent must move with technology and in the direction indicated by technology. If they are to survive they have no other choice.

Technology is a powerful ally; technology is a ruthless foe; technology is rendering useless all the social and moral philosophies of the past, and he who moves with technology must too sweep aside all of the conglomerate, ideological paraphernalia of yesterday.

There was that inimitable American youth, one Huckleberry Finn, who swept aside all of the archaic endoctrinations of yesterday with the simple statement, 'I don't take no stock in dead people . . .' And he went to the river to swim where the water was clear and the sun was bright. The youth of North America 'won't take no stock' in the dead and putrifying social theories of a passing age. And even as that exultant American boy they will move toward the clear and the bright.

Then in what will the youth of North America 'take stock'?

The youth of this country and this Continent possess the youngness of brain and body. They possess the spontaneity, the enthusiasm, and the guts. They can move forward with the unanimity of purpose and with the esprit de corps that will steam-roller any minority opposition that attempts to block the way. Once it has determined the way it will go as a mass, youth accepts no compromise.

The youth of North America possess the magnificent sweep of the Continent from Panama to the Pole: the abundant terrain—bountiful in vegetation, minerals, and variation of climate; the energy resources—coal, oil, hydroelectric installations and sites. They ask for opportunity? Then there is here on this Continent the vast and gleaming array of technological equipment, quivering like the crouching panther, impatient to unleash its dynamic force, eager to loose its energy into the exultant chase forward.

Why stagger through the bogs of sophistic debate and argumentation? Is this an Athenian forum? Why betray an exultant youthful energy to the defeatism and the negation of an alien moral philosophy, a ponderous communism that sweats its glorification and worship of toil? Why become intoxicated with the erudite emptiness of the intellectual liberal and waver in that pattern of oscillation from the null to the void? Why succumb

to the sterility of mind and purpose that is of the status quo? Why swirl in hypocritical tolerance and thus attempt to subjugate what must be a mass movement to the wishes of a nationalistic minority? Why seek for the shallow compromise? Why?

Youth's Own Job

Youth has been offered many things by the powers and organizations that have existed in the past. European youth of nine hundred years ago was offered salvation and benediction and it marched forth to drive the infidel from the Holy Land. It perished and was damned by the stupidity of its fathers. Twenty-four years ago the youth of this country was sent over to fight for the perpetuation of democracy and it was to find eternal happiness thereafter. You know what it found instead. The political leaders of today are again acclaiming the virtues of youth and they are offering salvation incomparable with bigger and better democracy to fight for. Youth today is offered salvation and benediction if it destroy a strange, diversified multifarity of infidels. But youth has no war off this Continent. If it blunders along the wrong trail it will be ruthlessly damned—and there will be no one thereafter to whine pity.

Technocracy is grown out of this Continent and it belongs to this Continent. Youth that is grown out of this Continent will find its direction in the organization that is grown out of the same soil. Technocracy offers youth a structure of organization designed to carry out a specified task in the near future. Technocracy offers a scientific method to carry on that task. Technocracy offers a factual social analysis, a scientific social synthesis. Technocracy is a challenge to youth. In actuality Technocracy will do nothing for youth; but youth will do much for Technocracy, and through Technocracy will youth achieve its greater tomorrow. Youth must arrange for its own future.

What is American youth beginning to do for itself? For one thing it is highly resentful of a system which cramps its inborn style. Youth is highly critical of its parents' institutions; it is scornful of half measures; it is losing its reverence for the promises and soft-soap of *all* the powers-that-be. It will get to the bottom of things. It is investigating, probing, and in some cases, unfortunately dissipating its energy on false trails. No. Youth has not always been thus. This is a new trend. It is Continent-wide. It is crystallizing into a mass movement. No power on earth can arrest it.

Secondly, youth is conceiving the idea that whatever is done must follow the pattern of North America—must be big. It must be done everywhere on the Continent. North American youth has been trained in a technological environment. The individualistic, humanistic enterprises of Europe and Asia are no part of it. It knows that the answer to its problems must be a technological one, an American one—the application of technological methods to all social processes.

North American youth will only be satisfied with an organization that can give it action, unified and homogeneous, factual and direct, and minus all the humbuggery and nonsense of endless liberal discussion. Thus, in all parts of this Continent, youth is looking for one organization—one new organization, not a boiled down mixture of all the old organizations that have ever existed. That is why American youth is turning to Technocracy Inc. which was built to its own specifications and behavior patterns.

The youth that are of Technocracy already are moving as one with a quiet positiveness. The youth of Technocracy comprise a Continental organization. The youth of Technocracy have passed by the archaic social theories of yesterday; they move with the spontaneity and the enthusiasm that is characteristic of youth. They are not losing their virility in the whoredom of compromise. The youth of Technocracy will make no affiliations with any political, philosophical, religious, racial, educational, or trade union groups as such. They or their members are free to become one with Technocracy as Technocrats. The youth of Technocracy will receive no overtures from any politician or political body. The youth of Technocracy will not waste their time in academic debate, futile discussion, or attempted reforms of parts of a society which is rotten from top to bottom.

We, the youth of Technocracy, greet the youth of North America because we know that they are impatient, as even we are, to move on to a greater tomorrow. Technocracy invites the youth of North America to examine the blueprinted specifications of their future on this Continent. Technocracy predicts that out of it a new and greater patriotism of youth will arise that will transcend all the 'values' now barring the way to the next America. Technocracy and youth will not have been in vain.

Technocracy salutes the youth of North America!

HOT STRIP STEEL TO TIN PLATE

A part of the world's newest industrial giant. (See page 17.) From ingot to slab, from slab to strips, and from strips to finished plates, in one long, direct, continuous process goes today's steel, never ceasing, never backtracking. Here we see the drive side of a 5-stand, tandem, cold reduction mill for tin plate in the new Irvin plant of the Carnegie-Illinois Steel Corporation. From the hot strip mill come the coils to this cold reduction giant with its annual capacity of 100,000 tons. One 600-horsepower motor and four 1,500-horsepower motors drive it at a speed up to 1,565 feet of strip a minute. Then on through electrolytic cleaning lines, gas-fired annealing furnaces, more rolls, shears, pickling, tin dipping, weighing, boxing, warehousing—finished tin plate. Modern technology has solved the problem of production, but science and technology have failed to turn their attention to the problem of distribution; failed to such an extent that this mill will only run for a few months out of each year. Not until science and technology are applied to processes of distribution and consumption as they are now applied to production will a New America of abundance and security for all be realized. Technocracy has put forward the only plan and is building the only organization on this Continent for such a realization. (Carnegie-Illinois Steel Corporation Photo by courtesy of the magazine *Steel*)

Propaganda for the Old America

'Since 1929, every mouthpiece of the government of the United States, and of national business has engaged in the difficult job of trying to pacify the people of this country with weird explanations of this country's descent into the slough of static defeatism.'—Howard Scott, October 1938.

Tabloid Report on N. A. M. Educational Program, as Published by the National Association of Manufacturers

American Family Robinson—

Heard over more stations than any other dramatic program, it is now being broadcast once or more a week by 270 stations. This includes 21 CBS stations and 19 NBC outlets.

Sokolsky Program—

This new program featuring George E. Sokolsky in a one-a-week fifteen minute discussion of current economic problems is now carried on 256 stations, of which over 60 percent use the program at night. Added to the American Family Robinson Program, this means a total of 338 stations throughout the country are now carrying either one or both of the programs.

Motion Pictures—

Four one-reel, 10 minute industrial 'shorts' playing in motion picture houses, schools and colleges, churches and before other special groups.

Outdoor Posters—

Forty-five thousand posters, based upon the theme, 'What's Good for Industry is Good for You,' over a three month period on 15,000 outdoor boards in 2,827 different communities.

Newspaper Advertisements—

This series of 12 full page 'Harmony' ads stressing what local industries mean to a city, have been run by 418 newspapers in 396 cities with a total number of insertions of 3,161.

You and Industry Library—

These eight booklets, containing basic facts on the American industrial system, are being distributed and are in wide demand by schools, colleges, ministers, professional groups, etc. About 1,000,000 already distributed, including:

High schools	300,000	booklets
Libraries	35,000	"
Colleges	21,000	"
Ministers	37,000	"
Companies (N. A. M. members and contributors)	125,000	"
Doctors	18,000	"
Newspaper editors and book reviewers	50,000	"
CCC Camps	12,000	"

Industrial Press Service—

Weekly news service going on request to 6,000 weeklies and small dailies carrying news, editorials and cartoons on American industry and economic problems. The cartoon service, the nation's largest, is going to 3,100 papers. A new feature, 'The Pocketbook of Knowledge' has just been added to the service and has already been subscribed to by 1,500 newspapers.

You and Your Nation's Affairs—

One-a-day column for daily newspapers written by six leading economists and containing interpretive comments on topics of the day. Subscribed to by 265 newspapers for use as supplied or as background for editorials.

Uncle Abner Says—

A punchy, humorous daily feature subscribed to by 310 newspapers. (Has been discontinued.)

Voice of American Industry—

Factual bulletin sent at intervals to editorial writers of every daily newspaper in the United States to give them information for use in editorial comment.

Industrial Facts—

A monthly bulletin containing facts on the American industrial system and supplied free to foremen, junior executives and key men in plants. Circulation 110,000 per issue.

Slide Films—

Eleven productions on industrial subjects, including two on plant and highway safety, shown at hundreds of employee meetings. Also in demand by schools and other small gatherings.

Service for Plant Publications—

Monthly clipsheet supplied on request to about 900 editors of house organs and plant publications.

Foreign Language News and Editorial Service—

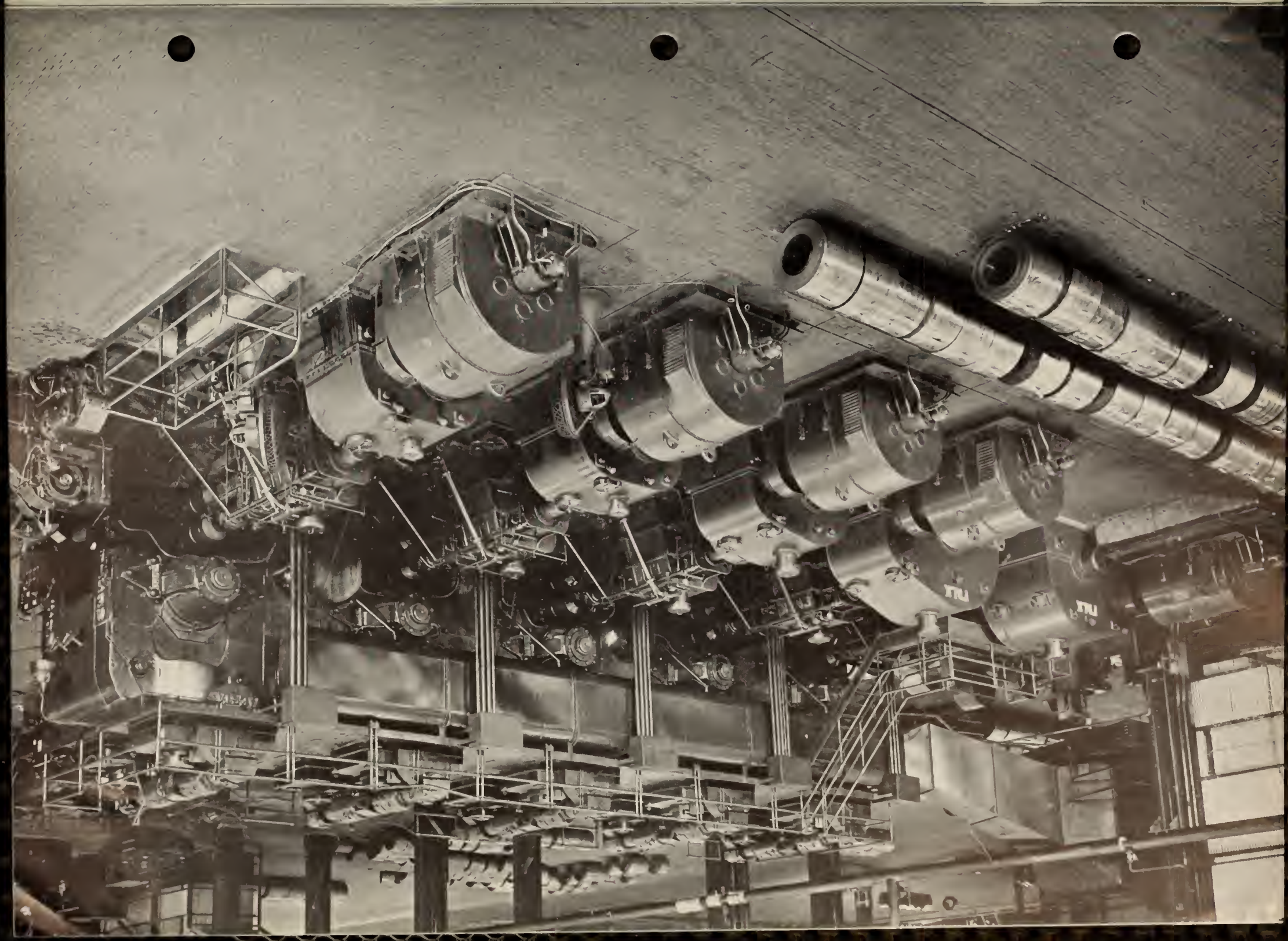
Translated in four languages and subscribed to by 150 foreign language newspapers.

Foreign Language Radio—

A total of 1,500 transcriptions have been used by radio stations in eight different languages.

Speakers Bureau—

Supplying staff speakers, and organizing available talent to meet requests from conventions, colleges, clubs, etc.



Earning Power–*A Modern Myth*

By Harold Fezer (C H Q)

ALONG with the multitudinous changes which Technology will yet introduce into our social and individual behavior patterns will be the elimination of the concept of personal, individual earning power. The fabric of our new society on this Continent will be woven without that time-honored concept, which even now is a partial anachronism.

The decree of equal (but not identical) availability of all goods and services to all citizens as projected by Technocracy for this Continent's new social order, has frequently found either hasty acceptance or bitter refusal from different, but equally irrelevant, perspectives.

There are those whose attitude is based on philosophical preconceptions and on utter ignorance of the physical and technological factors upon which the issuance of the decree has been based. There are those whose every thought process is guided philosophically and who accordingly are lead in all their ways of life by the principle of philosophy, that *their stand is right* chiefly to the degree to which they can establish or impose it through a presumed superiority of intellect or faith, in total neglect or contradiction of the physical, immutable factors of the problem in hand—their brand is right by virtue of an establishment of the other brands' wrongness. Then there are those who employ in their particular applied branch of science the objective method of determining the most probable, but who still insist upon employing their own peculiar brand of philosophical principles in their dealings in the social field.

But as yet there are so unbelievably few who will navigate, in and outside of their specialized applications of science, strictly and uncompromisingly in accordance with the findings of the methodology of the determination of the most probable—science!

It is this method of scientific determination which leads us to the conclusion that the concept of individual earning power will lose its validity to a growing degree (and eventually completely), notwithstanding any preconceived philosophical notion to the contrary. And it is this liquidation of the individual earning power which brings as an irrevocable corollary the equal, prorated availability of our total Continental economy to all citizens.

This is completely antithetical to all previous projections based upon the humanitarian desirability of a universal and equitable distribution of goods and services —either to each according to his need or instead in equal shares. In such philosophical approaches there will be mixed up somewhere along the line usually some such absurd 'fundamental' as the equality of all men. Seriously pressed for an adherence to such absurdity the defender may possibly take refuge in his retreat to the world hereafter for a fulfillment of this state of equality.

Growth of Economic Differentiation

In very primitive societies, there was (and is) occasionally in evidence a lack of economic differentiation. But differentiations of varying degree invariably have set in, reaching in assorted examples most staggering proportions. America has arrived today at the most ludicrous of all stages, when the differentiation has become not only extremely severe but has also reached the unique position where enormous quantities of a large array of materials are destroyed in the apparently vain attempt to maintain the insecure and ruinous differentiations.

In all prior societies there were, broadly speaking, two ways in which the acquisition of goods for a differentiation in earthly things could be achieved. The first was the efficacy of your own personal ability to work, instilled thrift, and other high or low moral qualities. Frequently that path was blocked by sundry limitations, among which was slavery, actual or virtual. Even if successful, the measure to which that path led to social benefactions was almost imperceptable and the process can aptly, if somewhat crudely, be characterized by the classic, 'Only a sucker tries to get rich by working.' One's earning power was limited a priori by the output of his one-tenth horsepower muscle engine.

The other avenue, practiced in an unlimited way in countless variations, both holy and unholy, was the one that led to the extraction of a certain surplus of the effort expended by one's fellow men, be they brethren or mere slaves of one's own or another color. The products of the expended energy so diverted were exchanged and amassed, yet never became of such proportions that destruction of the accumulations had to be considered. While the earning power of this type of wealth, particularly through incremental growth during several generations, became rather sizeable in isolated cases, the worry accompanying the accumulation was also frequently rather formidable. Lasting security was never attainable, no matter how cunning the benefactors or how great the precautions.

Whether working for one's own differentiation or for that of another individual, the fruits of inherent ability, industrious application, acquired skill and dexterity, high moral behavior, or any other form of human action pattern and capacity was fairly well traceable and attributable to the individual in question. And having established the efficacy of individual effort, there was then a basis, however vague, for the just or unjust reward in the form of earning power to the individual.

There was, for the overwhelming proportion of the population, an observable variation of earning power in return for longer hours of work, greater diligence, denial of vacation periods, and a continuation of one's job to

the brink of the grave. The lazy individual drew upon himself the moral outcry of his community. He was pointed out to the next generation as that horrible example to be avoided. The ways of the bees and ants were exhorted as the right and only way which would bring as a just reward the happiness of mind and soul as well as all the fruits of economic well-being.

Prior to the introduction of the machine, the effort of the individual citizen was expended either with himself as the sole member of the 'team,' or as the member of a small group, often consisting of immediate dependents and other components of his family. Even if a larger body of men (women and children) was involved, the enterprise more often than not 'enjoyed' the direct paternal benevolence of the patriarchal owner. With few exceptions, earning power of the individual was irrevocably bound to his fulfillment of the written or unwritten contract to earn his bread honestly by the sweat of his brow. No work, no eats! The arrival at the poorhouse was a distinct mark of a sinful way of life lacking the proper expenditure and appreciation of work. These conditions all contributed directly to the feasibility of applying the concept of individual worth and earning power.

The Inexorable Limitation

This environmentally conditioned action pattern was the inevitable outcome of an all-pervading and controlling factor in the form of an inexorable limitation; namely, that physical wealth was, and could only be, produced in direct proportion to the expenditure of human effort.

Even during the machine age, through which we have passed just now, this basic relationship was still valid in a sufficient measure to be the dominating social concept in the placing of earning power in the hands of the masses. The man, woman, or child who worked longer in the fields with the first crude farm implements; who remained longer hours at the bench; who labored more strenuously in the mine shaft; who applied himself with greater diligence at the desk, produced and accomplished more, resulting in a higher reward for diligent effort. In other words, with an increased rate of expended human energy a slightly increased rate of production was achieved. The concept of cooperation, enforced or voluntary, among larger bodies of human beings became a dominant note as against the individual operations of a handicraft society. We witnessed the creation and cry of surplus labor value, which in turn raised the demand for a more equitable distribution of earning power, it being held that labor produced all wealth. From this observation was deduced the demand for a dictatorship of the labor intelligentsia, cloaked in a mythical governance by the proletarian majority—another phase of the age-old jockeying of the 'outs' to get 'in.' It is to be noted that once 'in,' earning power and its proper ladling out can be treated with the properly detached perspective, since one is sufficiently far-removed from the masses so as not to be affected by the 'equitable' allocation of the said earning power.

A New Technique is Born

With the advent of the Power Age the scene changes. A fundamental, unique, and new factor arises from the introduction of modern technology—the application of science to the means whereby we live. A definite departure, a new era, upon us, yet not recognized by the accredited leaders in any field of human endeavor. A sad commentary on the social appereceptivity of the human animal! Volumes of words are spilled upon the public market through the array of modern media, yet nowhere, with the single exception of Technocracy, is there even as much as an admission that a clean break with our social past will soon become imperative, that we are about to be faced with the demand for a new modus operandi, not of merely one phase of our mode of living, but of the entire operations embracing all technical and sociological endeavors. We shall need to install a technology of social mechanics, accurate and sweeping, new and unique.

Previously, human toil was an integral part of all physical wealth, be it the erection of an outdoor privy or the creation of an original single oil painting, the making of a timepiece or the keeping of records. The amount of human energy varied in every field and process, but always there was a direct ratio between the input of human energy and the result achieved. The greater the input the greater the earning power for any given specific case, and equally so if applied to an economic totality.

With the introduction of technological automaticity a new relationship is created. A new technique is born. The ratio now is inverse. The greater the production, the smaller must be the input of human energy and the less there remains of the prior relationship of human application and earning power. We have the dictum that to produce more—and, in the old sense, to earn more—we must work less. There remains no basis of determining differentiated earning power on a just, moral, deserving, and equitable criterion, whether proletarian-European in origin, or of sloppily benevolent parentage.

How can we give the worker (who no longer is a worker) more for doing less? What relationship could possibly be deduced between individual earning power and the plethora of glass bulbs, cigarettes, strip steel, shoes, coal, automobile chassis, razor blades, and an untold number of other items, now pouring forth from automatic equipment requiring no longer the expenditure of human toil, but merely a more or less watchful attendant? Even the attendant will shortly be an unnecessary anachronism who is best sent out to play golf rather than be near the equipment which would then have to be guarded against his hangover of wanting to have something to do, which in the case of our most advanced installations would mean detrimental interference.

The great 'brain' centers of power grids are designed to avoid the vagaries of human behavior. Even if he wanted to, the unmindful 'keeper' of a modern colossus of power could not commit an error, short of planned and wilful destruction. Should he fall asleep over his detective story, the bell would ring.

The photoelectric cells at myriads of tasks count, sort, detect, discern, guide, direct, relay, and perform another multiple number of duties, involving the expenditure of nonhuman energy from the smallest measurable amounts to the indirect release of such tremendous forces as were known only to raw nature until yesterday.

There is no field in which Technology will not enter, displacing entirely, or below a calculable relationship,

the expenditure of human energy. Toil remains only where the present deplorable and needless lag between 'practical' advance and possible application is maintained through the dictates of our hopelessly outdated social controls.

The design, experimentation and installation of such automatic equipment requires application of human knowledge and skill. But it is not labor, toil, drudgery. And should we care to include in our calculation the time expended in the placement of our modern automats—from perception through development to the finished equipment—we should get nowhere in our attempt to relate input of human energy to the spewing forth of finished product. To introduce the concept of surplus labor value in the face of the virtual elimination of all labor in our production of goods and the provision of services is sheer lunacy and is perhaps closely related to the attempt of our noble economists who insist on correlating California prunes to Chinese babies, or horses to apples, or what-have-you.

There is even the invasion in the field of the spoken word, now so commonly accepted. The earlier orator to reach a greater number of people had to repeat his speech accordingly. The technology of radio multiplies his effectiveness to encompass the world while reducing even during one delivery the call on his energy. The adjunct of recording the spoken word extends the range even further without an increase of output on his part. And the newest equipment will modulate his voice to a pleasing pitch.

In recent years the American public has been made aware of the 'almost unbelievable' feats of modern power technology over and over again in the daily press, in the illustrated popular publications, in trade journals, the movies, by personal observation, and other avenues, always with the expressed or implied reminder that here are additional opportunities for the enchancement of earning power on the part of a greater number of people, resulting in the much-lauded 'higher standard of living.'

The Process of Inequalization

There seems to be no realization that all these 'newfangled' apparatus are eliminating the concept and relevancy of earning power as one of the components of an obsolete reference frame, along with the entire social form which has endured during seven thousand years of static scarcity.

During these seven thousand years of scarcity the human animal has been treated as a wilful, moral, and responsible entity which indulged in many varied occupations, creating by the application of human energy all physical wealth as well as establishing the mores and criteria of human society for the ethical, moral, religious and legal conduct of the individual molecule.

It cannot be stressed too often that all concepts of human behavior arose and were derived from this absolute physical limitation which decreed that all physical wealth could be produced solely through human toil. (The slight addition of energy from domesticated animals and water wheels was so negligible that it can be disregarded.)

With this limitation, which he could not break, however much philosophical speculation he might indulge in, homo sapiens invested human toil with much unctuous compensation. The genius expressed in these arrangements enabled those achieving or being born into higher stations to control the mass below. It brought about benign acceptance on the part of the sweating sucker. It induced these masses to apply themselves with great diligence in order to obtain a few additional crumbs the prevailing scarcity, as well as have promised to them a later and equal share of the glories beyond the mortal eye. It was held out to the masses as that one cure-all which would enable them to avoid every carnal temptation. And so it did, if religiously adhered to, by the simple expedient of exhaustion.

However great the diligence and effective the efforts, nothing more than an actual repudiation of that claim of mythical equality among men could result. It remained a process of inequalization in the here-and-now, with a promised and deferred equality beyond the grave. Such equality was, incidentally, delayed with every possible chicane and must never be embraced by one's own decision.

This process of inequalization was an inescapable result for the duration of that other process—the production of all physical wealth by human toil and energy. Now that this latter process has been altered to the extent where our physical wealth is produced by 98 percent extraneous, nonhuman energy and only 2 percent human energy, the first process of inequality and its concept of individual earning power is nothing short of an idiotic national behavior on the part of 140 million morons who will not face reality and a changed world.

The Molecule Consumes

It is now time that we deal with the mass of molecular human beings, not as those wilful, responsible and moral entities, but as energy-consuming devices arranged an integrated technological orchestration for the production of an abundance of goods and services by the use of nonhuman, extraneous energy. In this abundance each molecular entity will share to its full capacity of consumption, not by virtue of its earning power but by virtue of being a molecule within the mass.

Within the mass there will be unlimited variation of molecular behavior, both in contribution as well as enjoyment of consumption, but there could never be established a relationship between the individual's input and the resulting output upon which could be formed a basis for earning power. Nor could there be any conceivable economic differentiation maintained in a sea of abundance. Witness even today our supply of air. In a submerged U-boat a fight and differentiation might be attempted in the distribution of air, but not under the great dome of the outdoors.

Expressed in a condensed form, the abyss between the two worlds can be expressed as follows: Scarcity precludes economic equality; abundance makes such equality imperative and inescapable.

Earning power there will not be in the New America of this Continent. The moralities and ethics entwined with it will either evaporate freely or go awfully sour on us.

If it is found that imponderables are required by human beings for their enjoyable existence, a new set of those things will have to be gotten tomorrow, omitting however the concept of earning power.

An abundance of worldly goods will not merely disturb more or less extensively our social mores, but will replace them completely. There is no room for reform. A truly new and fresh era must needs be constructed.

The Book Review

An Orientation in Science

By Watkeys and Associates, McGraw-Hill, New York, N. Y., pp. 560, 1938, price $3.50

By M. King Hubbert (C H Q)

AS has been pointed out in the *Technocracy Study Course* and elsewhere, human social phenomena are a composite of the phenomena of all the several branches of science. The human species is but one of a whole biological complex. It obtains its food and clothing principally from other organisms. All organisms are composed of matter derived from the earth which has been compounded into organic materials and motivated by energy derived from sunshine. The historical rise of the human species has been chiefly the result of the cumulative development of techniques for the conversion of a larger and larger fraction of available energy into channels usable by the human species. This has resulted in an ever-expanding human population for some thousands of years, and in a gradual increase in the rate of exploitation of the mineral resources of the earth, together with the development of an industrial mechanism of size and complexity unprecedented in human or geological history. *Most of the growth of industry has occurred since the year 1900.* Out of this latter change, entirely without precedent, it is not surprising that human institutions, evolved to meet the needs of low-energy, agrarian states of development, should prove to be inadequate and that social conflict and confusion should be the result until institutions are established which meet the requirements of a high-energy social mechanism. For that reason, if anyone wishes to have any understanding of the complexities of present day social phenomena, it is absolutely necessary that the fundamental facts and relationships of such basic sciences as physics, chemistry, biology, geology, human physiology, and the like, be studied.

For the purpose of meeting this need the Division of Education of Technocracy Inc. has selected books in the various sciences which are both simply written and scientifically accurate. Particular effort has been made to obtain books which have treated science as a unified subject or have dealt with separate sciences in a manner that would aid the student in making his own integration. The official *Bibliography* is a list of some of the best books for this purpose that have so far been discovered.

The present book, by ten members of the science faculty of the University of Rochester, plus a final chapter by an author to be discussed later, is the latest of a series of texts issued by the staffs of various universities in which an attempt has been made to present the several sciences to beginning students as a unified subject. Separate chapters deal with different sciences and are written by different authors. The order of treatment runs: astronomy, geology (contemporary earth processes), chemistry, physics, chemistry, geology (earth materials —rocks and minerals), biology, paleontology, physiology, bacteriology, psychology, and mathematics, with a concluding chapter on scientific method.

A logical sequence has been maintained and some subjects like geology have been broken up so that the discussion of each part would fit logically. Minerals, for example, require a knowledge of chemistry, and hence follow that subject; fossils, likewise, come after biology.

Interestingly, among the better parts of the book are those dealing with organisms and the earth. The chapter on psychology, where a critic is likely to look for weakness, is ably written indeed. Its author distinguishes between what he calls 'prescientific psychology' of the old 'body and soul' or 'body and mind' variety, and the 'scientific psychology' exemplified by the work of such men as Pavloff, the modern endocrinologists, etc.

Among the more inadequate discussions is that on physics. When the overwhelming preponderance of matter and energy transformations on the earth's surface take place according to the Laws of the Conservation of Matter and Energy of so-called classical physics, and when radioactive transformations involve only a minute fraction of terrestrial matter, and the smashing of atoms in a million-volt apparatus is a rarer event still, one might expect the chapter on physics to elucidate the physics of the usual, everyday phenomena, rather than of the bizarre and the unusual. If so, one is doomed to disappointment, for the physics chapter is devoted almost exclusively to the latter. The phenomena of all the other chapters, except chemistry and astronomy, are made up principally of the phenomena of classical physics —water running downhill and organic metabolism, for example. This is also a reflection upon the present state of physics as a science; the physicists have become so fascinated with the interior of the atom that it involves no great exaggeration to say that most of them do not even know physics any more, which may account for their frequently violating the tenets of their own science when they make public utterances refuting technological unemployment, or become the star signers of protest letters in defense of 'liberty,' 'justice,' 'democracy,' or whatever else seems to be popular at the moment.

While it is to be regretted that science as it is organized and taught in our institutions of learning has not yet invaded the domain of human social phenomena and consequently no able discussion of such a subject is to be expected in a treatise of this kind, still the authors are to be complimented, with one reservation, for omitting chapters upon economics, sociology, and the rest of the array of the so-called social sciences. The one reservation pertains to the last chapter, written by the professor of philosophy. In literature, those who cannot write become critics: here, the representative of that mode of intellectual activity which throughout history has been the negation of the method of science has, for reasons not given, been elected, ironically, to write the chapter on the 'method of science.' This irony is heightened when one reviews what the psychologist cited as the postulates of 'prescientific psychology' only to find them re-occurring in such section headings as, 'the constructive role of the mind' in the final chapter.

While this book is far from faultless and is by no means ideal as a unified treatise on science, it still is scientifically accurate and is one of the better attempts to achieve such unification that has thus far appeared. It is accordingly well worth reading and having on hand for reference purposes in one's personal library or as an addition to the Technocracy Section library. Until something better becomes available it will be included in the official *Bibliography.*

Social Objectives

Technocracy's survey of the economic situation in North America leads to the conclusion that there is in development a process of progressive social instability, that this process will continue until the instability exceeds the limits of social tolerance, and that there then will have to be installed on the Continent a social mechanism competent to meet the needs of its people.

Technocracy finds further that the day when social operations on this Continent can be based on a method of valuation has passed, and that it is now necessary that there be applied in the social field the quantitative methods of physical science.

Technocracy, therefore, proposes that the North American Continent be operated as a self-contained functional unit under technological control. This control would operate the area under a balanced-load system of production and distribution, whereunder there would be distributed purchasing power commensurate with the resources and the continuous full-load operation of the physical equipment, with the guarantee of a high standard of living, equality of income, and economic security, at a minimum of working hours, to every adult inhabitant.

Technocracy states unequivocally that only such a social mechanism can operate with stability and endure in the face of the unidirectional and irreversible advance of this Continent's technology, use of extraneous energy, and resultant increase in potential production.

Technocracy is not a political party. It has nothing in common with communism, socialism, fascism, or any other social philosophy. It is the 'Technological Army of the New America,' an organization with a social objective formulated, officered, and staffed by North Americans as the only solution to the unique crisis facing this Continent.

Technocracy Inc. may take political action, but it would only do so when the Organization is sufficiently trained, disciplined, and widespread to permit the simultaneous execution of that action in all parts of one of this Continent's principal national entities. If Technocracy Inc. takes political action it will be the last political action, as such action would be taken solely for the abolition of the Price System and its accompanying political administration, and the transition into the functional mechanism of a Technate.

At this stage, therefore, the objectives of Technocracy Inc. are first, the education of the people of North America to a realization of the conditions behind the social crisis, and second, the organization of all those willing to investigate and interest themselves into an informed, disciplined, and functionally capable body whose knowledge and ability can be called upon to prevent chaos in North America at the time, now imminent, when the Price System can no longer be made to operate.

CAPTURING THE COLORADO RIVER

(Front Cover) The center spillway portion of Imperial Dam on the lower Colorado near Yuma, Arizona, where water will be diverted to the Gila and All American canals in Arizona and California. Nearby, the world's largest desilting plant will take 70,000 tons of silt daily from the 12,000 second-feet of water diverted—7,756 million gallons of clear water a day! Once completed, the dam and desilting plant will operate practically automatically. (Atlas Photo)

A SWEET RIDE!

(Back Cover) From cane to dinner table is now almost an automatic process for sugar. Here, in a California refinery, are phalanxes of cubes riding endless conveyors from ovens to packing room where automatic machines package and seal the sugar for the consumer. (Atlas Photo)

TECHNOCRACY

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A close-up of a 70-ton steel gate at G[illegible]d Coulee Dam. The gate fits into the temporary diversion slot, the water is pumpe[illegible]ut, concrete pumped in, and the slot closed for all time. Another step in technology's grand march. (Bureau of Reclamation Photo)

TECHNOCRACY INC.
Section 1, Regional Division 9749
Waldorf Building, 342 Main St. South
WINNIPEG, MANITOBA, CANADA